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**COGNOS® 8 Business Intelligence**

**COGNOS®**

THE NEXT LEVEL OF PERFORMANCE™
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Introduction

This document includes step-by-step procedures and background information to help you create standard and complex reports. Report Studio is a Web product for creating reports that analyze corporate data according to specific information needs.

To use this guide, you should have
- knowledge of your business requirements
- experience using a Web browser, developing Web applications, and writing reports
- knowledge of databases and data modeling concepts

The following documents contain related information and may be referred to in this document. To view these documents, either consult your administrator to determine the online location of Cognos documentation or search the Knowledge Base of the Cognos Global Customer Services Web site: (http://support.cognos.com/kb-app/knowledgebase). If you require logon credentials, either consult with your administrator or send an email to support.america@cognos.com.

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For more information about using this product, visit the Cognos Global Customer Services Web site (http://support.cognos.com). For information about education and training, click the Training link from this site.

This document is available as online help and as an online book.

From within the online help, you can click the following link to open a printable version of this document (PDF).

Our documentation includes user guides, tutorial guides, reference books, and other materials to meet the needs of our varied audience.
Introduction

**Online Help**
All information is available in online help. Online help is available from the help button in a Web browser, or the Help menu and help button in Windows products. You can also download the online help from the Cognos Global Customer Services Web site (http://support.cognos.com).

**Books for Printing**
The information in each online help system is available in online book format (PDF). However, the information from a given help system may be divided into more than one online book. Use online books when you want to print a document or when you want to search the whole document.

You can print selected pages, a section, or the whole book. Cognos grants you a non-exclusive, non-transferable license to use, copy, and reproduce the copyright materials, in printed or electronic format, solely for the purpose of providing internal training on, operating, and maintaining the Cognos software.

Online books are available from the introduction to the online help for each component. All online books are available on the Cognos documentation CD.

You can also read the product readme files and the installation guides directly from Cognos product CDs.
Chapter 1: Report Studio

Report Studio is a Web-based tool that professional report authors use to build sophisticated, multiple-page, multiple-query reports against multiple databases. With Report Studio, you can create any report that your company requires, such as invoices, statements, and weekly sales and inventory reports.

Planning Reports

Before you use Report Studio to design and create a report, some information is required. For each report, answer the following questions:

• Who is the target audience?
• What business question do you want to answer?
• Which type of report will best answer the business question?
• What are the data sources, and where are they?
• Which data items and calculations are needed?
• What are the security needs?
• How will the report be distributed?

Answering some of these questions involves working with other Cognos 8 components. For example, Framework Manager is the metadata tool used to model your enterprise data. Models created in Framework Manager provide the data items that you use in reports.

Working in Report Studio

To create reports in Report Studio, you must become familiar with the Report Studio environment.

To work effectively in Report Studio, do the following:

❑ Familiarize yourself with the user interface.
❑ Learn about basic report structure, which includes the layout and queries.
❑ Learn how to work with report objects.
❑ Set the options you want.

The User Interface

The Report Studio user interface has two panes, an explorer bar, and a work area to help you create reports.
Chapter 1: Report Studio

Insertable Objects Pane

The Insertable Objects pane contains objects that you can add to a report. You add objects to a report by dragging them to the work area.

The Insertable Objects pane contains these tabs:

- The source tab contains items from the package selected for the report, such as data items and calculations.
- The data items tab describes the queries created in the report.
- The toolbox tab contains a variety of objects that you can add to the report, such as text and graphics.

Properties Pane

The Properties pane lists the properties that you can set for an object in a report.

You can obtain additional information about a property by selecting it and clicking F1. For example, you can view the list of objects that uses each property.

When you specify a value for a property, press Enter, click another property, or save the report to ensure that the value is saved.

Tip: View a description of the currently selected property at the bottom of the pane. From the View menu, click Property Descriptions.

Explorer Bar

Use the following buttons on the Explorer bar to work with different parts of a report:

- Pause the pointer over the page explorer button to go to a specific report page or prompt page.
  Tip: You can also add a new report page or add a prompt page (p. 117), as well as create and modify classes (p. 102).
- Pause the pointer over the query explorer button to work with queries (p. 127).

You use Query Explorer to create or modify queries and to perform complex tasks, such as defining union joins and writing SQL statements.
• Pause the pointer over the condition explorer button to work with variables. You use variables to define conditions (p. 153) in a report.

Work Area

The work area is where you design reports.

Visual Aids Button

The visual aids button provides the following options to help you when you are designing reports in the layout.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hide boundary lines</td>
<td>Hides all boundary lines.</td>
</tr>
<tr>
<td>Show boundary lines</td>
<td>Shows all boundary lines.</td>
</tr>
<tr>
<td>Show boundary lines (override)</td>
<td>Shows boundary lines when the Border property for an object is set to None.</td>
</tr>
<tr>
<td>Show repeating</td>
<td>Repeats objects when you insert them. For example, when you insert a data item in a crosstab, the data item appears in each row or in each column of the crosstab.</td>
</tr>
<tr>
<td>Show drag &amp; drop padding</td>
<td>Shows drag-and-drop zone when the Padding property for an object is set to 0. If the Padding property is set to a value that is greater than the minimum padding that Report Studio uses to show drag-and-drop zones, only the minimum padding is shown.</td>
</tr>
<tr>
<td>Show hidden objects</td>
<td>Shows objects for which the Box Type property was set to None.</td>
</tr>
<tr>
<td>Show sorting</td>
<td>Shows the sorting icon for data items for which a sort order (p. 108) was specified.</td>
</tr>
<tr>
<td>Show grouping</td>
<td>Shows the grouping icon for grouped data items (p. 43).</td>
</tr>
<tr>
<td>Show source type</td>
<td>Shows the source type icon of objects, such as layout calculation.</td>
</tr>
<tr>
<td>Show drill throughs</td>
<td>Shows data items for which a drill-through definition (p. 164) was defined as hyperlinks.</td>
</tr>
<tr>
<td>Show bookmarks</td>
<td>Shows bookmarks (p. 86) inserted in the report.</td>
</tr>
<tr>
<td>Show master detail relationships</td>
<td>Shows master detail relationships (p. 170) defined in the report.</td>
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</tbody>
</table>

Tip: Pausing the pointer over the master detail relationship icon shows the relationship.

Basic Report Structure

All reports have two components, a layout component that defines the report appearance, and a query component that defines report data. Understanding these components will help you design effective reports.

Layout

A layout is a set of pages that defines the appearance and formatting of a report. When you design the layout of a report, you
Chapter 1: Report Studio

- present the data in a meaningful way by using lists, crosstabs, charts, and maps
- give the report the appearance you want by adding formatting, such as borders, color, images, and page numbers
- specify how the data flows from one page to the next

Pages
Pages are containers for the layout objects that you use to build a report. A page is made up of the following mandatory and optional components:
- page header (optional)
- page body (mandatory)
- page footer (optional)

When you run a report, the amount of data queried often exceeds one page. As a result, a page will repeat until all the data is shown. You have control over how data flows from one page to the next. For example, here are alternative representations of a report that contains a chart and a lengthy list.

(1) The chart appears on its own page. The list begins on the next page and fills subsequent pages until all rows appear.

(2) The chart and the first few rows of the list appear on the first page. The rest of the data in the list appears on the subsequent pages.

Objects
You add layout objects to a page when you create a report. Below are objects that you will use often when building reports in Report Studio:
- list
  Add a list to show data in rows and columns.
- crosstab
  Add a crosstab to show data in a grid, with dimensions along the rows and columns, and measures in the cells or intersection points.
- chart
  Add a chart to show data in a graphical format.
- map
  Add a map to plot data geographically.
- repeater
  Add a repeater to show each instance of a certain column or data item in a separate frame.
- text
  Add a text item to show textual information.
- block
  Add a block to hold text or other information. Blocks are often used to lay out horizontal bands of information.
- table
  Add a table to arrange or align layout objects in a left to right, top to bottom fashion.
For information about other layout objects you can add to a report, see "Insert Other Objects" (p. 89).

Queries

Queries determine what data items appear in the report. Sometimes you want detail rows of data, which you obtain by using a simple SELECT statement. Other times you must calculate totals or averages using aggregate functions and grouped columns, or must apply filters to show only the data you want.

Report Studio automatically creates the queries you need as you build reports. However, you can modify these queries or create your own custom queries to get the results you want.

For more information about queries, see "Working with Queries" (p. 127).

Working with Objects

You build reports by adding objects and manipulating them to obtain the results you want. To understand how to work with objects in Report Studio, you must be familiar with the following concepts:

• object types
• objects as containers
• locking and unlocking objects
• hierarchy of objects

For information about Report Studio objects, see "Report Studio Object and Property Reference" (p. 333).

Object Types

In Report Studio, layout objects are either inline or block. You can insert other objects on the same line as an inline object, but not on the same line as a block object. When you insert an object to the left or to the right of a block object, the object appears on the line above or below the block object respectively. Examples of inline objects include graphics and text items. Examples of block objects include any report type (list, crosstab, chart, map, or repeater) and tables.

Note: You can also use an object's floating (p. 101) property to define how other objects flow around the object. For example, you can specify how text flows around an image.

Objects as Containers

Objects, such as tables (p. 91), blocks (p. 89), and any report frame (p. 43), are containers in which you can insert other objects. For example, you can insert a list in one cell of a table and a chart in another.

Tip: You can also nest objects to create a sophisticated layout. For example, you can insert a table in a cell of another table.

Locking and Unlocking Objects

To manipulate the contents of some objects, you must first unlock the object. For example, you have a list that contains the column Product Name. You want to insert a graphic inside the Product Name column to show an image of each product. Unlocking the list allows you to insert the image object inside a list column.

Tip: From the Structure menu, click Lock Page Objects. Toggling this menu item locks and unlocks all layout objects in a report. However, this setting is not saved with the report.

Hierarchy of Objects

In Report Studio, objects are organized hierarchically. For example, a list contains list columns, and each list column contains a text item, which is the name of the inserted data item.
Chapter 1: Report Studio

The hierarchy of objects is useful to remember when you apply formatting because formatting is applied to the child objects of the object. For example, you can specify that all list column titles in a list have red as the background color. The formatting is automatically applied to any new columns you add to the list, because the formatting is applied to the list and is therefore applied to the objects in the list. If you apply formatting to a specific object, it will override the same formatting specified for the parent object.

Set Options

Set the options you want when working in Report Studio.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show members folder</td>
<td>When working with dimensional data, shows members folders for each level (p. 31).</td>
</tr>
<tr>
<td>Show startup dialog</td>
<td>Shows the Welcome dialog box at startup.</td>
</tr>
<tr>
<td>Resize window at startup</td>
<td>Maximizes the Report Studio window at startup.</td>
</tr>
<tr>
<td>In-place edit</td>
<td>Enables the editing of text in place when double-clicking.</td>
</tr>
<tr>
<td>Group properties</td>
<td>Groups properties in the Properties pane (p. 24), such as Text Source, Data, and General.</td>
</tr>
<tr>
<td>Allow local file access</td>
<td>Enables the opening and saving of reports on your computer (p. 141).</td>
</tr>
<tr>
<td>Reuse Cognos Viewer window</td>
<td>Reuses the same Cognos Viewer window when you rerun a report without first closing the window.</td>
</tr>
<tr>
<td>Resize Cognos Viewer window</td>
<td>Maximizes the Cognos Viewer window when you run a report.</td>
</tr>
<tr>
<td>Automatically validate expressions</td>
<td>Automatically validates expressions, such as filters, created in the expression editor (p. 223).</td>
</tr>
<tr>
<td>Delete unreferenced query objects</td>
<td>Automatically deletes query objects linked to another object. For example, if you delete a list, the query linked to the list is deleted as well.</td>
</tr>
<tr>
<td>Show hidden layout objects</td>
<td>Shows layout objects in which the Visible property was set to No.</td>
</tr>
<tr>
<td>Wrap text in editors</td>
<td>Automatically wraps text in all editors where you can define expressions.</td>
</tr>
<tr>
<td>Animate explorers</td>
<td>Animates the appearance of the Page Explorer, Query Explorer, and Condition Explorer (p. 24).</td>
</tr>
<tr>
<td>Use Windows skin</td>
<td>Replaces the current appearance of the interface with the display scheme specified by the Windows settings.</td>
</tr>
<tr>
<td>Automatically populate values list</td>
<td>When building expressions in the expression editor, automatically shows values when browsing the data of a data item (p. 224).</td>
</tr>
<tr>
<td>Alias member unique names</td>
<td>When working with a dimensional data source, creates an alias when you add a member to the report or to an expression (p. 225).</td>
</tr>
</tbody>
</table>
Steps
1. From the Tools menu, click Options.
2. On the General, View, and Edit tabs, set the options you want.
3. On the General tab, do the following:
   • In the Request time out (seconds) box, type the maximum time allowed for an operation to execute before it is cancelled.
   • If you are working with dimensional data, in the Member display count limit box, type the maximum number of members that can appear in the Insertable Objects pane when performing a search (p. 32).
   • If you are working with maps, in the Feature display limit box, type the maximum number of features that can appear in a map.
4. On the View tab, under Layout dimensions, type the width and height of the area where you will create reports.
5. On the Edit tab, do the following:
   • In Tab stops, specify the length of tabs.
     This option allows you to add and remove tabs by pressing Tab and Shift+Tab.
   • In Aggregation mode, if you are working with a dimensional data source, click the aggregation type you want Report Studio to use when aggregating values in crosstabs and charts.

<table>
<thead>
<tr>
<th>Aggregation mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within detail</td>
<td>Aggregates the visible details.</td>
</tr>
<tr>
<td>Within aggregate</td>
<td>Aggregates the visible aggregates at the next lower level of detail.</td>
</tr>
<tr>
<td>Within set</td>
<td>Aggregates the member sets.</td>
</tr>
</tbody>
</table>

For more information about aggregating values in crosstabs and charts, see "Aggregating Values in Crosstabs and Charts" (p. 113).
6. Click OK.

Creating a Report
When you create a report, you are actually creating a report specification. The report specification defines the queries and prompts that are used to retrieve data, as well as the layouts and styles used to present the data. For simplicity, the report specification is named the report.
Before creating a report, ensure that you have the planning information (p. 23) you need.
Creating a new report involves
- specifying the package
- choosing a report template
- adding data items
- saving the report
- running the report
You can then format the report (p. 81) and manipulate the data that will appear in the report (p. 105). For information about other tasks that are specific to a report type, see “Types of Reports” (p. 43).

Specify the Package
Specify the package that will provide items for the report.
Chapter 1: Report Studio

The packages that you use to generate reports are based on models that are created in the modeling tool, Framework Manager. A model is a set of related objects, such as query subjects, dimensions, filters, and calculations. When you open a package in Cognos 8, these model objects are visible in the left frame.

The package must be previously created and published to the Cognos Connection portal. For more information, see the Framework Manager User Guide.

Steps
1. In the Cognos Connection Welcome page, click the Report Studio link. If there is more than one package available, the Select a package page appears. Otherwise, Report Studio starts.
2. If more than one package exists, click the one you want to use.
3. In the Welcome dialog box, choose whether to open a new or existing report or template:
   - To create a new report or template, click Create a new report or template and choose a report template.
   - To open an existing report or template, click Open an existing report or template and select a report.

Objects from the selected package, such as data items, appear on the source tab of the Insertable Objects pane.

Tip: You can later change packages (p. 146).

Refresh the Package

If the package that a report is using has changed, refresh it to ensure that you are working with the latest version.

Steps
1. In the Insertable Objects pane, click the source tab.
2. Right-click its background and click Refresh.

Tip: You can also close and reopen the report to upgrade it to the latest version of the package.

Choose a Report Template

When creating a new report, choose a report template to get you quickly started. You can select a predefined template that is formatted as a particular report type (p. 43), or you can open an existing report as a template.

Steps
1. From the File menu, click New.
2. If you want to change the package, click the ellipsis points (...) and click a different package.
3. Choose a report template:
   - To create a report using one of Report Studio’s predefined templates, double-click the template you want.
     Tip: Double-click Query Studio Template to create a report template that Query Studio users can apply to their reports.
   - To create a report using a previously created template, double-click Existing, locate the template, and click Open.
     Tip: Click the Type box and then click Templates to only see existing templates.
   - To open an existing report as a template, double-click Existing, locate the report, and click Open. You are actually opening a copy of the report, and the original report remains unchanged.

The report template appears in the report page. For more information about templates, see "Creating Your Own Report Templates" (p. 37).
Add Data to a Report

Select the data items that you want to appear in the report.

You may frequently use items from different query subjects or dimensions in the same reports. Ask your modeler to organize these items into a folder or model query subject and then to republish the relevant package. For example, if you use the product code item in sales reports, the modeler can create a folder that contains the product code item and the sales items you need.

Steps

- In the Insertable Objects pane, on the source tab, drag each data item to the location where you want it to appear.

Tips: For more information about a data item, right-click the item and click Properties. Other ways to select data items are to double-click each item, or right-click each item and click Insert.

A flashing black bar indicates where you can drop an item. Items inserted in the report appear on the data items tab.

Tip: If you want to remove a data item from the report, select it and click the delete button. To remove the data item from the report but keep it on the data items tab, click the cut button instead.

Working with Dimensional Data

If you are working with a dimensional data source, data items are organized hierarchically. Dimensional data sources include OLAP data sources and Dimensionally Modeled Relational (DMR) data sources. The source tab in the Insertable Objects pane shows a metadata-based view of the data.

Note: The names of levels and members in a dimension come from the model. It is the responsibility of the modeler to provide meaningful names.

1. Package. Packages are subsets of a model, containing items that you can insert in a report.
2. Dimension. Dimensions are broad groupings of descriptive data about a major aspect of a business, such as products, dates, or markets.
3. Level hierarchy. Level hierarchies are more specific groupings within a dimension. For example, for the Years dimension, data can be organized into smaller groups, such as Years, Current Month, and Last Month.
4. Members folder. Member folders contain the available members for a hierarchy or level. For example, the Members folder for the Years level hierarchy contains everything found in the Year, Quarter, and Month levels.
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**Note:** To see members folders, you must select the **Show members folder** check box in the **Tools** menu (p. 28).

(5) **Level.** Levels are positions within the dimensional hierarchy that contain information at the same order of detail and have attributes in common. Multiple levels can exist within a level hierarchy, beginning with a root level. For example, the **Years** level hierarchy has the following related levels.

<table>
<thead>
<tr>
<th>Level</th>
<th>Level name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root</td>
<td>Years</td>
<td>The root level.</td>
</tr>
<tr>
<td>First</td>
<td>Year</td>
<td>Years in the <strong>Years</strong> root level. For example, 2004, 2003, and 2002.</td>
</tr>
<tr>
<td>Second</td>
<td>Quarter</td>
<td>Quarters for each year in the <strong>Year</strong> level. For example, 2004 Q1, 2004 Q2, and 2004 Q3.</td>
</tr>
<tr>
<td>Third</td>
<td>Month</td>
<td>Months for each quarter in the <strong>Quarter</strong> level. For example, Jan., Feb., and Mar.</td>
</tr>
</tbody>
</table>

**Tip:** The **Measures** dimension, which is not visible in the above diagram, contains the measures available in the data source.

(6) **Member property.** Member properties are attributes that each member possesses. For example, gender could be a property for all employee members. For more information about member properties, see "**Insert a Member Property**" (p. 32).

**Insert a Hierarchy**

You can quickly insert entire hierarchies in a report using a single click of the mouse.

**Steps**

1. In the **Insertable Objects** pane, on the source tab, drag the hierarchy that you want to insert to the report.
2. In the **Insert Hierarchy** dialog box, choose which members to insert:
   - To insert only the root members of the hierarchy, click **Root members**.
   - To insert all members of the hierarchy, click **All members**.
   **Tip:** When inserting all members of a hierarchy into a crosstab, you can see the hierarchical structure by specifying a value for the **Indentation Length** property.

**Insert a Member Property**

You can insert member properties in a report. For example, an employee level may have a property named gender.

**Steps**

1. In the **Insertable Objects** pane, on the source tab, drag the member property that you want to insert to the report.
2. If the **Insert Member Property** dialog box appears, choose whether to repeat or group the property:
   - To repeat the property in the rows or columns of the crosstab, click **Insert property only**.
   - To insert the property and have it grouped, click **Insert property and group it**.
   The property will appear once in the rows or columns of the crosstab.

**Search for Members**

You can perform a member search to quickly find the data you want.
Steps

1. In the Insertable Objects pane, on the source tab, right-click a dimension, hierarchy, or level, and click Search.
2. In the Words box, type the words or characters you want to search for.
3. Click the search parameter you want to use.
4. If you want to perform a case-insensitive search, select the Case insensitive check box.
5. If you want to search all descendents instead of just the immediate children, select the Search all descendents check box.
   For example, when performing a search in a hierarchy, selecting this check box returns members found in all the levels of the hierarchy.
6. Click Search.

Report Studio searches for all members for the object selected in step 1. The results appear in a hierarchical structure on the search tab. You can browse the hierarchy to explore members at lower levels.

Tip: You can insert members directly into a report. This can save you time, as you do not have to define a filter. For example, instead of inserting Product line from the source tab and adding a filter for Camping Equipment, you can insert Camping Equipment from the search tab.

Save a Report

Save your report to preserve the modifications you made.

Reports are saved to the Cognos 8 server. You can also save your report on your computer (p. 141).

Steps

1. From the File menu, click Save, or click Save As to save a copy of the report under a different name.
2. If you are saving the report for the first time, specify where you want to save the report and type a file name.
   For information about setting up folders in Cognos Connection for your reports, see the Cognos Connection User Guide.
3. Click Save.

Run a Report

Run your report to see the data that is retrieved. Save time by validating it first to check for errors.

You can also run a report or a group of reports in Cognos Connection. For more information, see the Cognos Connection User Guide.

If you run a report that uses functions or features not supported by the data source, an error message appears. We recommend that you periodically test your reports while you author them in Report Studio to ensure that you do not encounter multiple error messages when you run the report.

Steps

1. Open the report that you want.
2. If you want to clear parameters values stored on the Cognos 8 server, from the File menu, click Clear Parameter Values.
   Parameter values stored by the Cognos 8 server include signon, validation, and prompt information. For example, if you define two data source connections in Cognos Connection that point to the same data source, you will be prompted to choose one when you run a report. This information is stored so that you will not be prompted each time you run the report.
3. From the Tools menu, click Validate Report.
   A message box appears indicating whether any errors were found in the report.
4. If you require more detail from the validation process, revalidate the report by clicking **Validate with Options**, and do the following:
   - Click one of the following validation levels.

<table>
<thead>
<tr>
<th>Validation level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error</td>
<td>Retrieves all errors returned from the query.</td>
</tr>
<tr>
<td>Warning</td>
<td>Retrieves all errors and warnings returned from the query.</td>
</tr>
<tr>
<td>Key Transformation</td>
<td>In addition to errors and warnings, retrieves informational messages describing important transformation steps from the report specification to the native query sent to the data source. These messages can be helpful to understand the cause of errors and warnings returned from the query.</td>
</tr>
<tr>
<td>Information</td>
<td>Retrieves errors, warnings, key transformations, and other information related to query planning and execution.</td>
</tr>
</tbody>
</table>

   - Select the **Interactive Data** check box to specify that no query optimization is to be used. The **Interactive Data** check box controls how queries will be processed during validation. Clear the **Interactive Data** check box to set the **Execution Optimization** property to **All Rows**.
   
   Tip: For more information about the **Execution Optimization** property, see **Execution Optimization** in "Report Studio Object and Property Reference" (p. 333).

5. If you want to view only the tabular data, from the **Run** menu, click **View Tabular Data**. If the report contains multiple queries, you must first click an object, such as a list or crosstab, that uses the query for which you want to view the tabular data. Use this command to ensure that the right results appear. For example, you create a calculation (p. 114) and you want to ensure it is giving you the results you want.

   Tip: You can also view tabular data in Query Explorer (p. 127), which is useful when you are building queries.

6. If you want to set run options, from the **Run** menu, click **Run Options**. The default value is the value of the selected corresponding run option in Cognos Connection. The run options you set apply only to the current session. When you close Report Studio, the options return to the default settings.

7. Change any values you want for the current session and click **OK**.

<table>
<thead>
<tr>
<th>Option</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>None.</td>
</tr>
<tr>
<td>Paper size</td>
<td>Specify only if the output format is PDF.</td>
</tr>
<tr>
<td>Paper orientation</td>
<td>Specify only if the output format is PDF.</td>
</tr>
<tr>
<td>Data mode</td>
<td>Specify how much data is returned. <strong>All Data</strong> returns all data. <strong>Limited Data</strong> limits the amount of data returned based on design mode filters defined in the package. <strong>No Data</strong> returns artificial data instead of actual data from the data source. For more information about design mode filters, see the Framework Manager <strong>User Guide</strong>.</td>
</tr>
<tr>
<td>Language</td>
<td>The content language sets the preferred language for the data, Cognos Viewer, dates, and so on.</td>
</tr>
</tbody>
</table>
8. From the Run menu, click one of the options to produce the report in the format you want. You can produce a report in HTML, PDF, CSV, various Excel formats, and XML. You cannot produce a report in CSV or XML format if you have more than one query defined in the report, unless the additional queries are used for prompts.

The report runs in Cognos Viewer. Once the report has finished running, you can run the report again in the same format or in a different format. If you run the report again in CSV or XLS format, the report will appear in a new browser window.

The options available in Cognos Viewer depend on the capabilities set by the administrator for each user. For more information, see the Administration and Security Guide.

Running a Report Against a Dimensional Data Source

You can cancel a report that is running against Microsoft SQL Server Analysis Services only during the initial portion of its execution. After this time, the report runs to completion.

The same behavior applies to SAP BW data sources.

In Framework Manager, you can also control the number of levels within a hierarchy from which members, or values, are extracted from the hierarchy to populate a tree prompt.

For SAP BW, you can reduce the number of hierarchy levels to limit the number of nodes by setting the SAP BW variable property trimHierarchyLevels to 1. This removes the lowest level from the hierarchy prior to creating the list of nodes.

Units of Measure Notation

When running a report against an SAP BW data source, units of measure are included in the same column as the data values, separated by one space. For example, Celsius and Fahrenheit notations are appended to the end of the value.

If you see an asterisk character (*), one of the following was detected:

- an unknown currency
- a value of unknown or questionable unit of measure, such as a mixed currency calculation or rollup

Mixed currency values occur when you calculate values with different currencies.

This behavior occurs when you are using a Cognos cube as a data source.

This behavior also occurs for SAP BW data sources.

Unsupported SAP Variable Properties

Some SAP variable properties are not supported.

Exclusionary ranges appear as an inclusionary prompt.

Mandatory not initial appear as a mandatory prompt.
When using BEx to define variables in your SAP data source, avoid using exclusionary ranges and the mandatory not initial property.

**Controlling the Rows Per Page for Multiple Containers in HTML and PDF**

If you have more than one data container in a report, such as a list and a crosstab, you can control how the report is rendered in HTML and PDF by setting the **Rows Per Page** property for each container.

Cognos 8 uses the following rules when rendering reports in HTML and PDF:

- If the **Rows Per Page** property is not set for any of the data containers, 20 rows per page are rendered in HTML and each page is completely filled in PDF. The first data container is rendered until there is no more data, followed by the next container, and so on.
  
  **Tip:** The number of rows that appear on a PDF page depends on the font size set in the report.

- If the **Rows Per Page** property is set for each data container, the specified numbers of rows are rendered in HTML and PDF on each page until there is no more data.

- If the property is set for only some of the containers, the specified numbers of rows are rendered in HTML and PDF on each page until there is no more data. For the remaining containers, 20 rows per page are rendered on each page in HTML and each page is completely filled in PDF.

  For example, you have two lists, List1 and List2. You set the **Rows Per Page** property to 5 for List1. When you run the report in HTML, the first page contains the first 5 rows from List1 followed by the first 15 rows of List2.

- If no data is returned for a data container, an empty container is rendered.

**Producing a Report in CSV Format**

Cognos 8 can produce reports in CSV format so you can open them in other applications, such as Microsoft Excel. Reports saved in CSV format:

- are designed to support Unicode data across many client operating systems
- are UTF-16 Little Endian data encoded
- include a BOM (Byte Order Mark) at the beginning of the file
- are tab-delimited
- do not enclose strings in quotation marks
- use a new line character to delimit rows

You can open reports saved in CSV format using Microsoft Excel, Microsoft Windows Wordpad, and Star Office. By default, reports produced in CSV format will appear in the application associated with the .csv file type.

You cannot produce the following in CSV format:

- maps
- charts that do not have at least one category or series

In Cognos Connection, you can configure the CSV output to suit your environment. For example, you can specify the character used to delimit fields. For more information, see the *Administration and Security Guide*.

**Producing a Report in Excel Format**

Cognos 8 can produce reports in Excel format. Three options are available:

- **Excel 2000 Single Sheet** will produce reports on one sheet that you can view in Microsoft Excel versions earlier than 2002.
- **Excel 2000** will produce reports that you can view in Microsoft Excel versions earlier than 2002.
- **Excel 2002** will produce reports that you can view in Microsoft Excel versions 2002 and later.

The Excel 2000 format can be viewed with versions of Excel 2000 and later. It supports up to 65,536 rows and multiple sheets.
Excel 2000 single sheet format offers improved security. Excel 2000 may have cookies in the URLs to spreadsheets, which could be used to illegally impersonate a user. Excel 2000 single sheet format does not use outgoing URLs. However, there is a limit of 65,536 rows, and page breaks for multiple-author pages are ignored.

Excel 2002 format and Excel 2000 single sheet format also offer the following benefits:

- Both work with SSL protocol.
- Both work with a single signon. Secure reports can be accessed without subsequent signons because the system automatically identifies users and provides security information.
- Both work with Netscape 7.01.
- Spreadsheets are contained in a single file for reliable spreadsheet navigation.

The Cognos 8 full date format does not always appear correctly in Microsoft Excel 2000 if it is on a system with a regional setting other than English. This does not occur with Microsoft Excel 2002 or 2003 versions. To fix this, reapply the proper format in Excel.

Limitations exist when producing reports in XLS format. For more information, see "Producing Reports in Microsoft Excel Format" (p. 323).

**Producing a Report in XML Format**

XML report outputs save the report data in a format that conforms to an internal schema, xmldata.xsd. You can find this schema file in \c8_location\bin. This format consists of a dataset element, which contains a metadata element and a data element. The metadata element contains the data item information in item elements. The data element contains all the row and value elements.

You can create models from reports and other data that conform to the xmldata.xsd schema. This is useful if you want to use a report as a data source for another report, or if you use a database that cannot be read by Framework Manager. In this case, export the data from the data source to an XML file, in conformance with the xmldata schema, and then open the XML file in Framework Manager.

For more information, see the Framework Manager User Guide.

You cannot produce the following in XML format:

- maps
- charts that do not have at least one category or series

**Print a Report**

Print your report to obtain a paper copy.

You can also print a report from Cognos Connection. For more information, see the Cognos Connection User Guide.

**Steps**

1. If you are producing the report in PDF, from the File menu, click Page Setup and set the page options you want.
2. Run the report.
3. From the File menu, click Print.
4. Select the print options you want and click OK.

**Creating Your Own Report Templates**

A report template is a pattern you use to build reports. Create your own report templates when you frequently produce the same type of report. A template can include the following objects:

- HTML items
Chapter 1: Report Studio

- hyperlinks
- page numbers
- images
- tables
- text items
- blocks
- layout calculations
- date
- time

For more information about these objects, see "Formatting a Report" (p. 81).

To create a report template, you can

- convert a report to a template
- create a Query Studio template

For more information about how to create a report template, see the Report Studio Tour. In addition, you can use sample templates (p. 203) provided with Report Studio.

**Tip:** You can add your own report templates to the New dialog box. For more information, see the Administration and Security Guide.

**Convert a Report to a Template**

Convert a new or existing report to a template so it can be reused.

**Steps**
1. Create a new report or open an existing report.
2. Add the objects you want to the work area.
3. From the File menu, click **Convert To Template**.
   - Any query-related information in the original report, such as data items, calculations, and filters, is removed from the template.
4. From the File menu, click **Save As** to save the template as a new file and keep the original report intact.

**Create a Query Studio Template**

Create a Query Studio template to provide Query Studio users with a layout that they can use to create reports or apply to existing reports. You can also use the Query Studio template to define a layout for prompt pages.

**Steps**
1. From the File menu, click **New**.
2. Click **Query Studio Template** and click **OK**.
3. Pause the pointer over the page explorer button and click the report page or prompt page you want to format.
   - **Tip:** To create a new report page or prompt page, click the **Report Pages** or **Prompt Pages** folder.
4. In the Insertable Objects pane, click the toolbox tab.
5. Add the objects you want to the work area.
   - If you add objects that are not supported by Query Studio, the objects will be ignored when you apply the template.
6. Save the template.
Techniques for Creating Accessible Reports

Creating accessible reports ensures access of information to all users, with all levels of ability. For example, blind users may use screen reading technology to access the information in a report. The following are some design considerations for creating accessible reports:

- Avoid using visual cues, such as text bolding or color, to convey important information.
- Avoid using pictures and OLE Objects in PDF documents, as these items are tagged as artifacts and ignored by the screen reader.
- Avoid using conditional formatting to convey important information.
- Chart types are inaccessible to the screen reader. They are rendered as images, which the screen reader ignores. A good practice when including a chart is to ensure there is a corresponding table with the same information. In this way, visually impaired individuals can still obtain the same information from the table.
- Deliver reports through HTML, as it is the most supported output format for most screen readers.
- Always ensure there is a title on the report.
- Gain an understanding for screen reading technology.
- Avoid spelling and grammar errors, as they cause the screen reading software to misinterpret the information.
- You can use prompts in accessible reports, including check boxes, radio buttons, combo boxes, and multi-select boxes. Avoid using features like calendar boxes and up and down selections on time controls.
- When choosing to use embedded Web applications or drill-through paths, ensure the target application is also accessible.
- Avoid using large, complex list or crosstab reports. Displaying the information in multiple simple lists or crosstab reports is more manageable for users of Assistive Technology.

Techniques for Creating Reports for Cognos Office Connection

Cognos Office Connection provides an integrated environment for Cognos products and Microsoft Office. You can use Cognos Office Connection to select pieces of reports to embed in Microsoft Excel workbooks, Microsoft Word documents, or Microsoft PowerPoint presentations, including data, metadata, headers, footers, and charts. You can use predefined reports or you can create new content using PowerPlay Web, Query Studio, or Report Studio.

Note that to access PowerPlay content, your administrator must configure PowerPlay to work with Cognos 8. PowerPlay content that is published only to Upfront is not available to Cognos Office Connection.

Because Cognos Office Connection cannot fully convert highly formatted reports into Excel or other Microsoft document output types, you may not get the results that you want.

To create effective reports for Cognos Office Connection, follow these recommendations:

- Create content to meet specific Microsoft Office integration needs. For example, in Cognos 8, many options are available to format data. Use less formatting to make data more accessible to Office applications.
- Organize reports. You can publish workbooks to Cognos Connection and organize them with your reports in Public Folders or My Folders. For more information, see the Cognos Connection User Guide. By organizing your content, you can quickly retrieve the information that you want.

Tip: Workbooks, documents, and presentations that are enabled for Cognos Office Connection are identified by their own unique icons, helping you to distinguish them from other types of files.
- Optimize report templates for Microsoft Office.
If you rely on IT personnel or other report authors to create content, request report templates that are optimized for your Microsoft Office integration needs. You may want to request only the data elements or queries that you need and request minimal formatting so that you can more easily use Microsoft Office formatting capabilities with the Cognos content. For example, reports authored in Report Studio can contain list objects embedded within list objects with specific formatting applied. When converted to the tabular representation available in Excel, these reports may not be rendered in the same way in which they appear in Cognos 8.

- **Format elements in the Office application.**
  Instead of formatting objects in Cognos 8, add the formatting that you want in the Office application. By applying less formatting in Cognos 8, more data can be imported into the desired locations.

- **Label report elements using descriptive names.**
  This practice makes them more easier to find after you import them. Examples of report elements include lists, crosstabs, and charts.

- **Do not nest report objects.**
  If you nested report objects, some objects may not appear in the correct location, or they may not appear at all. In addition, nesting report objects may cause the following error message to appear:

  RDS-ERR-1000 Report Data Service could not process from the content provider.

  For example, this error occurs if a repeater or repeater table is inside a block or table. It also appears layout objects, such as lists, crosstabs, and charts, are in a conditional block that is inside another block or table.

- **Keep table sizes small.**
  For example, because of the size of slides, the maximum number of rows and columns that you can have in PowerPoint tables is 25. Although Word and Excel permit larger tables, it takes more time to download and render them.

- **Use images with transparent backgrounds.**
  The background will show through the image in the Office application, making the image look like part of the presentation. If you want, you can then supply your own background color.

- **If you have an image in a list, specify its height and width.**
  This practice ensures that the image appears in the correct size in the Office application.

- **Remember that graphs and charts are imported as images.**
  Images in Cognos 8 have image maps associated with them to enable tooltips and hotspots. Cognos Office Connection cannot import tooltips and hotspots into Office applications.

- **Consider the additional limitations that exist when producing reports in Excel format.**

  For information about how to perform these tasks, see the Cognos Connection *User Guide*.

## Managing Your Reports

After you create one or more reports, you can manage them for yourself and others. You can perform the following tasks in Cognos Connection:

- **Schedule a report or a group of reports to run at a specific time.**
- **Distribute reports to other users.**
- **Print a report.**
- **Select the language used when a report is run.**
- **Set prompt values.**
- **Maintain the history of a report.**
- **Maintain different versions of a report.**
- **Create report views.**

For information about how to perform these tasks, see the Cognos Connection *User Guide*. 
The Cognos 8 SDK

When you create a report in Report Studio, you are creating a report specification. A report specification is an XML file that you can view (Tools menu, Show Specification). In addition, you can view the specification for a selected object with the Show Specification (Selection) menu option.

Tip: When you are viewing the report specification in Report Studio, you cannot modify or copy parts of it.

Instead of using Report Studio, you can programmatically create or modify reports by using an editing tool to work with report specifications. You then use the Cognos 8 software development kit (SDK) to implement the reports in your Cognos 8 environment. This is useful if, for example, you must make the same modification in many reports. Rather than opening each report in Report Studio and making the change, you can automate the process using the SDK, thereby saving you time. For more information about the Cognos 8 SDK, contact your local Cognos sales office.

Tip: You can also modify the XML code in a report specification by saving the report specification on your computer (p. 141).
Chapter 2: Types of Reports

You use different report types to look at data in different ways or to answer different business questions. For example, you create a list report to show your entire customer base, but you create a crosstab report to show which sales representative has the highest sales for each product line. You can create a chart to present data graphically, and use a repeater to create mailing labels.

In Report Studio, you can create the following types of reports:

- list
- crosstab
- chart
- map
- repeater

You can also combine one or more of these in a single report.

List Reports

Use list reports to show detailed information from your database, such as product lists and customer lists.

A list report is a report that shows data in rows and columns. Each column shows all the values for a data item in the database or a calculation based on data items in the database.

For information about how to create a list report, see the Report Studio Tour.

Group Data

Group data items in a list report to remove duplicate values. For example, you have a report that shows products purchased. For each product, the product type is also shown. You group the Product type column to show only one instance of each product type in the list.

You can also group data items in repeaters (p. 79) and in page sets (p. 95).
Chapter 2: Types of Reports

If you are querying a dimensional data source, you can group or sort in the order of the existing hierarchy only. If you change the order, an error occurs. You can omit columns from the grouping. For example, if a level hierarchy contains the levels Country, State, and City, and another level hierarchy contains the level Product:

- Country, State, City is valid.
- Country, Product, and State is not valid because a level from another level hierarchy was inserted between two levels from another level hierarchy.
- Country, City, and Product is valid even though State is omitted.

If you want to override the hierarchical order that the data source specifies, you can override the dimension information of the query. For more information, see "Add Dimension Information to a Query" (p. 132).

Steps
1. Open the report that you want.
2. Click the column you want to group on.
   
   You can click either the column heading or one of the column cells.
   
   Tip: To perform multiple groupings at once, use Ctrl+click or Shift+click.
3. From the Structure menu, click Group/Ungroup.

A symbol appears indicating that the column is grouped. You can control when its values appear by setting the group span, and the column appears in the list of headers and footers that you can add to the report (p. 82).

Perform Advanced Grouping

You can perform more advanced groupings in a list to get the results you want. For example, you can group a data item that appears in a query but not in the layout.

You can also perform advanced sorting (p. 109).

Steps
1. Click a column in the list.
2. Click the select ancestor button in the title bar of the Properties pane and click List.
3. In the Properties pane, double-click the Grouping & Sorting property.
4. In the Data Items pane, click the data item you want and drag it to the Groups folder in the Groups pane.
5. If you want to specify a list of properties (p. 117) for a group header (p. 82), do the following:
   - Click the group that you want.
   - Click the properties button.
   - Select the appropriate check boxes.
   - Click OK.
6. Click OK.

Set the Group Span for a Column

When columns are grouped, you can choose how often to show column names by changing the group spanning. For example, when country and city are both grouped, you can choose to show the country name each time

- the country changes, by spanning Country by Country
- the city changes, by spanning Country by City
- there is a new record, by specifying no spanning

Spanning one grouped column by another column is helpful if the second column contains many items.

Steps
1. Open the report that you want.
2. Click the column for which you want to set the group span.
3. In the Properties pane, click the Group Span property and click the column you want to span.

Example - Remove Identical Values in a List

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report that lists all product orders, organized by order number. To make the report easy to read, you group the Order number column so that only one instance of each order number appears. However, because each order contains different products, the same order date appears for each product. You decide to show the order date only when the order number changes.

Steps
1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   - Order number
   - Order date
   - Product name
   - Quantity
   - Revenue
   Tip: You can find these data items in the Orders and Products folders.
6. Group the Order number column.
7. Click the Order date column.
8. In the Properties pane, click the Group Span property and then click Order number.

When you run the report, the first row of the Order date column appears for each Order number row.
Example - Repeat a Column Value in a List

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report that lists all products sold by the company, organized by the product line and product type. To make the report easier to read, you group the Product line and Product type columns so that only one instance of each column appears. However, because some product lines contain many different product types and products, you decide to show the product line for each product type.

Steps

1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   - Product line
   - Product type
   - Product name
   - Description
   - Production cost
   Tip: You can find these data items in the Products folder.
6. Group the Product line and Product type columns.
7. In the Properties pane, click the Group Span property and click Product type.
8. Click any part of the list and then click the select ancestor button in the title bar of the Properties pane.
9. In the Properties pane, click List.
10. In the Properties pane, double-click the Font property.
11. In the Size box, click 8pt and click OK.

When you run the report, the product line appears whenever the product type changes.

<table>
<thead>
<tr>
<th>Product line</th>
<th>Product type</th>
<th>Product name</th>
<th>Description</th>
<th>Production cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camping Equipment</td>
<td>Lanterns</td>
<td>Firefly Multilight</td>
<td>This light can be used as either a flashlight or as a lamp. Uses two C batteries included. Burn time 7-9 hours. Water-resistant.</td>
<td>$17.78</td>
</tr>
<tr>
<td></td>
<td>Flicker Lantern</td>
<td>Simple to use, just requires a candle to be inserted and lit. Windproof, lasts for hours.</td>
<td>$24.62</td>
<td></td>
</tr>
<tr>
<td>Camping Equipment</td>
<td>Packs</td>
<td>Canyon Mile Carryall</td>
<td>This pack has a large capacity, perfect for carrying all your camping gear. Seld metal zipper and leather bottom.</td>
<td>$41.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Canyon Mile Climber Backpack</td>
<td>This pack is perfect for day trips and short hikes. Also great for students. Separate front compartment, multi-layered interior organizer. 2 cm waist belt. 32.000 cu. cm.</td>
<td>$62.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Canyon Mile Cooler</td>
<td>A durable plastic cooler with hinged top, perfect for storing small items. Size: 16x14.5x59 cm.</td>
<td>$24.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Canyon Mile Extreme Backpack</td>
<td>Perfect for long back country trips, this pack features an expandable front pocket, includes a large sleeping bag compartment, padded shoulder harness, back and waist belt. 90,000 cu. cm.</td>
<td>$239.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Canyon Mile Journey Backpack</td>
<td>Set of three packs: handlebar pack, front pack and rear pack. Designed to fit most mountain bikes. Includes mounting hardware. Total volume: 60,000 cu. cm.</td>
<td>$213.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Canyon Mile Weekender Backpack</td>
<td>A weekend getaway requires this pack. It features a large front compression pocket, harness and waist belt, foam molded backpanel, vinyl covered gear loops. 50,000 cu. cm.</td>
<td>$165.96</td>
</tr>
<tr>
<td>Camping Equipment</td>
<td>Sleeping Bags</td>
<td>Hibernator</td>
<td>The Hibernator is a three-season sleeping bag, the rectangular shape allows for easy packing. Nylon shell material. 8 cm loft. Comfortable down to 0°F. One size fits up to 195 cm.</td>
<td>$85.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hibernator Camp Cot</td>
<td>Aluminum frame camp cot that is lightweight and durable. Size: 108 x 225 x 50 cm. Weight: 7 kg.</td>
<td>$65.33</td>
</tr>
</tbody>
</table>
Format Lists

Format lists to give them the appearance you want. You can specify formatting for individual column titles or bodies or for all columns in a list. When you specify formatting for all columns in a list, the formatting is automatically applied to new columns you subsequently add.

You can also quickly format lists by applying table styles (p. 92).

Steps

1. Open the report that you want.
2. To format an individual column, do the following:
   • Click the column title or column body.
     To format the text in the column title or the data in the column body, click the unlock button in the toolbar and then click the title or body.
     To format the whole column, click the select ancestor button in the title bar of the Properties pane and click List Column.
   • In the Properties pane, click the property you want and specify a value.
     For example, to specify a background color, click Background Color and choose the color you want to use.
3. To format all columns, do the following:
   • Click a column in the list.
   • To format list column bodies, click the select ancestor button in the title bar of the Properties pane and click List Columns Body Style.
   • To format list column titles, click the select ancestor button in the title bar of the Properties pane and click List Columns Title Style.
   • To format entire columns, click the select ancestor button in the title bar of the Properties pane and click List Columns.
   • To format the entire list, click the select ancestor button in the title bar of the Properties pane and click List.
     In the Properties pane, click the property you want and specify a value.
     For example, to specify a background color, click Background Color and choose the color you want to use.

Formatting for specific columns overrides formatting for entire columns. For example, you specify red as the background color for a specific column body and green as the background color for all columns. When you run the report, the specific column body is red and the remaining columns in the list are green. New columns added to the list will have green as their background color.

For more information about formatting reports, see "Formatting a Report" (p. 81).

Crosstab Reports

Use crosstab reports to show information in a more compact form than in a grouped list. For example, create a crosstab report to show total sales by product line generated by each sales representative.

Like list reports, crosstab reports are reports that show data in rows and columns. However, the values at the intersection points of rows and columns show summarized information rather than detailed information.
Chapter 2: Types of Reports

For information about how to create a crosstab report, see the Report Studio Tour.

### Crosstab Nodes and Crosstab Node Members

When you add data items to crosstabs, you create crosstab nodes and crosstab node members. These objects allow you to easily create crosstabs, using drag-and-drop operations.

Crosstabs are dimensional objects that have row edges and column edges. Each edge is composed of a set of crosstab nodes. Each crosstab node contains the following:

- One or more crosstab node members.
- Zero or one nested crosstab node, which contains one or more crosstab node members or nested crosstab nodes.

Each crosstab node member refers to a data item that contains an expression that defines the members that appear in the crosstab.

The following crosstab contains four crosstab nodes.

Crosstab node 1 contains a single node member for the total. This node refers to the data item `Total(Product line)`.

Crosstab node 2 contains a crosstab node member that refers to the data item `Product line`. This member has a nested crosstab node containing a crosstab node member that refers to the data item `Product type`.

**Tip:** Nodes are also created when you add data items to charts.

### Moving Crosstab Nodes

Crosstab nodes can be placed anywhere in the crosstab. For example, in the previous diagram, you can drag `Order month` under `Average(Product line)` to create a row edge.
If you want to move nested items from one edge to another, ensure that you select the crosstab node and not the crosstab node member. For example, in the previous diagram, you want to move Product line and Product type to the column edge. To do this, click Product line, and in the Properties pane, click the select ancestor button, and click Crosstab Node. Both Product line and Product type are selected.

Crosstab Node Creation Option

In the Structure menu, the Create Crosstab Nodes option affects the drag-and-drop behavior in crosstabs. When the option is turned on, and you add a data item to a crosstab, the item is created as a crosstab node. If the option is turned off, the item is created as a crosstab node member to an existing crosstab node.

For example, in the previous diagram, if the option is turned on and you drag Country from the Insertable Objects pane beneath Product line, Country becomes a new peer node to Product line. If the option is turned off, Country becomes a new peer node to Product line and has Product type as a nested crosstab node. This happens because instead of adding a new node, you are adding a new member to the existing node that already contains Product line.

Tip: To create discontinuous crosstabs (p. 53), turn the crosstab node creation option on. If you want the items on the edges of crosstabs to be related (contain the same nested items), turn the crosstab node creation option off.

Create a Single-Edge Crosstab Report

Create a single-edge crosstab report to show data in a list-like form. For example, you want a report that shows the quantity of products sold for each year and for each order method. Create a crosstab with Order Year and Order Method as rows and Quantity as the measure.

Steps
1. From the File menu, click New.
2. Click Crosstab and click OK.
3. In the Insertable Objects pane, on the source tab, click the data item you want to add to the crosstab and drag it to Rows or Columns.
   A black bar indicates where you can drop the data item.
4. Repeat step 3 to insert additional data items.
   If you dragged the data item in step 3 to Rows, drag the additional items above or below the first item.
   If you dragged the data item in step 3 to Columns, drag the additional items to the left or right of the first item.
5. To add measures to the crosstab, drag the measures you want to Measures.
When you run the report, a crosstab is produced that has only one edge.

Create a Nested Crosstab Report

Nest data in a crosstab report to compare information by using more than one data item in a column or row. For example, a report shows the number of sales by product line for the past fiscal year. You decide to add a data item to further break down the number of sales by quarter.

When nesting columns in a crosstab report, there are four distinct drop zones where you can insert a new data item. The drop zone you choose will define the relationship between the data item and the column.

Rows
The following relationships are created when you insert a data item as a row:
• Inserting a data item to the left or right of a column creates a parent-child relationship between them.
Chapter 2: Types of Reports

When you insert a data item to the left of a column, the data item becomes a parent to the column. When you insert a data item to the right of a column, the data item becomes a child of the column.

- Inserting a data item above or below a column creates a union relationship between them.

**Columns**

The following relationships are created when you insert a data item as a column:

- Inserting a data item to the left or to the right of a column creates a union relationship between the data item and the column.
- Inserting a data item above or below a column creates a parent-child relationship between them.

When you insert a data item above a column, the data item becomes a parent to the column. When you insert a data item below a column, the data item becomes a child of the column.

For example, you have a crosstab with Product line as rows and Quantity and Revenue as nested rows. For columns, you have Order method with Country as a nested column.

- Product line is a parent to Quantity and Revenue.
- Quantity and Revenue are peers.
- Order method is a parent to Country.

**Steps**

1. Open the report that you want.
2. In the Insertable Objects pane, on the source tab, click the data item you want to add to the report.
3. Drag the data item to the location in which you want it to appear as a nested column or nested row.
   - A black bar indicates where you can drop the data item.
4. Repeat steps 2 to 3 to add other nested columns or rows.

**Tip:** If you add more than one measure to a crosstab, all measures appear as columns. You cannot have one measure appear as a row and another as a column. To make all measures appear as rows, swap columns and rows (p. 98).

**Specify the Default Measure**

Specify the default measure to be used when the measure is not specified on a row or column edge. For example, you create a crosstab with Order method as rows and Product line as columns. You add Quantity and Revenue as nested rows, making Order method their parent (p. 49). You then add Country under Order method. Since there is no measure specified for Country, you specify the default measure so that data is returned for each country.

Report Studio automatically sets the default measure when you insert a measure into the crosstab cells.

**Steps**

1. Open the report you want.
2. Click any part of the crosstab, and then click the select ancestor button in the title bar of the Properties pane.
3. Click Crosstab.
4. Click the Default Measure property and click the measure you want to use as the default measure.

**Format Crosstabs**

Format crosstabs to give them the appearance you want. You can specify formatting for rows, columns, and fact cells in a crosstab, or for the entire crosstab. When you specify formatting for all rows, columns, fact cells, or the crosstab, the formatting is automatically applied to any new items you add.
You can also quickly format crosstabs by applying table styles (p. 92), and add white space to a crosstab by inserting crosstab space objects (p. 89).

**Steps**

1. Open the report that you want.
2. To format the entire crosstab, do the following:
   - Click anywhere in the crosstab.
   - Click the select ancestor button in the title bar of the Properties pane and click Crosstab.
   - In the Properties pane, click the property you want and then specify a value.
     For example, to specify a background color, click Background Color and choose the color you want to use.
3. To format all rows, columns, or fact cells, click a row, column, or fact cell in the crosstab and then do the following:
   - If you clicked a row, click the select ancestor button in the title bar of the Properties pane and click Crosstab Rows.
   - If you clicked a column, click the select ancestor button in the title bar of the Properties pane and click Crosstab Columns.
   - If you clicked a fact cell, click the select ancestor button in the title bar of the Properties pane and click Crosstab Fact Cells.
   - In the Properties pane, click the property you want and then specify a value.
     For example, to specify a background color, click Background Color and choose the color you want to use.
4. To format all crosstab cells for a specific row or column, do the following:
   - Click the row or column.
   - Click the select ancestor button in the title bar of the Properties pane and click Crosstab Member Fact Cells.
     **Tip:** You can also right-click the row or column and click the menu option for selecting the member fact cells. The menu option indicates the crosstab cells you will be formatting. For example, if you have Product line as rows and you right-click it, the menu option will be Fact Cells for "Product line".
   - In the Properties pane, click the property you want and then specify a value.
     For example, to specify a background color, click Background Color and choose the color you want to use.
5. To format all row or column titles, do the following:
   - Click a row or column title.
   - Click the select ancestor button in the title bar of the Properties pane and click Crosstab Rows or Crosstab Columns.
   - In the Properties pane, click the property you want and then specify a value.
     For example, to specify a background color, click Background Color and choose the color you want to use.
6. To format an individual row, column, or intersection, do the following:
   - Click the row, column, or intersection.
     **Tip:** To format the data in a row, column, or intersection, click the unlock button in the toolbar and then click the text item you want to format.
   - In the Properties pane, click the property you want and then specify a value.
     For example, to specify a background color, click Background Color and choose the color you want to use.

**Tip:** In cases where fact cell formatting applied to rows conflicts with fact cell formatting applied to columns, you can use the Fact Cells Precedence property in the Properties pane to determine whether the row formatting or the column formatting has precedence. To specify this property, click anywhere in the crosstab. Then click the select ancestor button in the title bar of the Properties pane and click Crosstab.

For more information about formatting reports, see "Formatting a Report" (p. 81).
Change a List into a Crosstab

Change a list report into a crosstab report to view your data from a different perspective.

**Steps**
1. Open the report that you want.
2. Click the columns that you want to appear as columns or nested columns in the crosstab.
3. From the **Structure** menu, click **Pivot List to Crosstab**.

The list becomes a crosstab, with the columns you selected in step 2 appearing as columns and nested columns. The unselected columns, except for measures, appear as rows and nested rows. If you have one measure, it becomes the cells of the crosstab. If you have more than one measure, they appear as columns.

**Tip:** To make all measures appear as rows, swap columns and rows (p. 98).

Example - Add Aggregate Data to a Crosstab Report

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report showing sales by order method to determine which methods are generating the most revenue and the highest sales volume.

**Steps**
1. In the Cognos Connection **Welcome** page, click the **Public Folders** link.
2. Click the **GO Sales and Retailers** link, and then click the **Report Studio** link in the upper right corner of the page.
3. In the **Welcome** dialog box, click **Create a new report or template**.
4. In the **New** dialog box, click **Crosstab** and click **OK**.
5. In the **Insertable Objects** pane, on the source tab, add the following data items to the crosstab:
   - Double-click **Order method** to add it as columns.
   - Double-click **Product line** to add it as rows.
   - Click **Product type** and drag it just to the right of **Product line**. **Product type** is now nested in **Product line**.
   - Double-click **Quantity** to add it as a measure.
   - Double-click **Revenue** to add it as a second measure.
   **Tip:** You can find these data items in the **Orders** and **Products** folders.
6. Click any part of the crosstab and then click the select ancestor button in the title bar of the **Properties** pane.
7. Click **Crosstab**.
8. In the **Properties** pane, double-click the **Font** property.
9. In the **Size** box, click **8pt** and click **OK**.
10. Click one of the measures.
11. Click the aggregate button and click **Maximum**.

When you run the report, you can see that for the **Special** order method, the personal accessory **Knives** generated the highest sales volume, and **Watches** generated the most revenue. By sales visit, **Knives** generated the largest sales volume. **Watches** ordered by the **Telephone** order method generated the largest revenue.
### Chapter 2: Types of Reports

#### Example - Create a Discontinuous Crosstab

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report showing sales for each product line by quarter and by order method. Since the report will have columns with data from different dimensions, you create a discontinuous crosstab report. Discontinuous crosstabs are also known as disconnected or disjoint crosstabs, or crosstabs with unrelated columns.

#### Steps

1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click Crosstab and click OK.
5. In the Insertable Objects pane, on the source tab, drag the following data items to the crosstab:
   - Product line from Products to Rows
   - Order method from Orders to Columns
   - Revenue from Orders to Measures
6. Pause the pointer over the query explorer button and click Query1.
7. In the Insertable Objects pane, on the toolbox tab, drag Data Item to the Data Items pane.
   The Data Item Expression dialog box appears.
8. In the Expression Definition box, type the following and click OK:
   ```sql
   CASE
     WHEN [gosales_goretailers].[Orders].[Order month] between 1 and 3 THEN 'Q1'
     WHEN [gosales_goretailers].[Orders].[Order month] between 4 and 6 THEN 'Q2'
     WHEN [gosales_goretailers].[Orders].[Order month] between 7 and 9 THEN 'Q3'
     ELSE 'Q4'
   END
   ```
9. In the Properties pane, double-click the Name property, rename the data item Quarters, and press the Enter key.
10. Pause the pointer over the page explorer button and click Page1.
11. In the Insertable Objects pane, on data items tab, drag Quarters to the left of Order method.

#### Table

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Special Revenue</th>
<th>Web Revenue</th>
<th>Telephone Revenue</th>
<th>Fax Revenue</th>
<th>E-Mail Revenue</th>
<th>Product line</th>
<th>Order method</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Navigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td>1,122 $139,903.66</td>
<td>12,394 $2,552,562.46</td>
<td>14,458 $1,533,674.66</td>
<td>2,685 $952,824.52</td>
<td>9,384 $1,073,282.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watches</td>
<td>2,124 $108,522.00</td>
<td>20,956 $2,380,119.48</td>
<td>26,324 $2,236,335.08</td>
<td>7,014 $520,147.06</td>
<td>15,480 $1,002,194.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knives</td>
<td>2,250 $130,695.38</td>
<td>27,640 $1,366,855.32</td>
<td>31,160 $1,957,065.05</td>
<td>6,662 $398,327.40</td>
<td>18,942 $1,101,278.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eyewear</td>
<td>1,100 $121,044.40</td>
<td>11,596 $1,079,727.28</td>
<td>13,550 $1,229,396.90</td>
<td>2,516 $232,373.34</td>
<td>8,840 $785,715.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Binoculars</td>
<td>938 $116,251.99</td>
<td>8,774 $1,004,928.24</td>
<td>11,756 $1,401,917.74</td>
<td>2,062 $249,502.90</td>
<td>6,854 $706,905.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>2,290 $186,322.90</td>
<td>27,046 $1,703,119.48</td>
<td>36,110 $2,330,315.08</td>
<td>7,014 $528,147.00</td>
<td>18,942 $1,187,134.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Product type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outdoor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection</td>
<td>1,102 $131,663.16</td>
<td>13,482 $106,083.68</td>
<td>17,146 $140,610.00</td>
<td>4,440 $36,000.00</td>
<td>11,860 $91,090.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Aid</td>
<td>2,191 $174,655.09</td>
<td>42,204 $2,003,449.92</td>
<td>52,146 $2,455,641.54</td>
<td>11,778 $56,220.09</td>
<td>25,622 $165,100.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunscreen</td>
<td>3,111 $3,657.38</td>
<td>55,006 $555,132.00</td>
<td>73,078 $453,721.42</td>
<td>14,210 $29,258.48</td>
<td>30,800 $251,945.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact</td>
<td>5,110 $317,637.20</td>
<td>55,908 $332,132.90</td>
<td>73,978 $433,721.42</td>
<td>14,210 $284,258.48</td>
<td>30,820 $231,045.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repellents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>5,110 $317,637.20</td>
<td>55,908 $332,132.90</td>
<td>73,978 $433,721.42</td>
<td>14,210 $284,258.48</td>
<td>30,820 $231,045.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Product type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>1,750 $200,640.76</td>
<td>22,224 $2,671,969.52</td>
<td>25,652 $2,179,557.22</td>
<td>4,052 $476,270.32</td>
<td>15,534 $1,521,429.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeping Bags</td>
<td>2,156 $760,556.90</td>
<td>28,658 $10,355,942.14</td>
<td>22,074 $12,217,810.89</td>
<td>7,720 $2,707,685.90</td>
<td>21,566 $7,643,294.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tents</td>
<td>2,144 $314,523.30</td>
<td>22,256 $3,376,465.36</td>
<td>23,542 $3,641,360.36</td>
<td>5,136 $902,660.72</td>
<td>14,545 $2,202,011.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 2: Types of Reports

Tip: Ensure that the pointer is directly beside Order method before you drop Quarters. Otherwise, Quarters may appear as a nested row instead of a column.

12. Click Quarters.
13. In the Properties pane, double-click the Sorting property.
14. From the Data Items pane, drag Quarters to the Sort List pane.
15. Click the sort order button to sort quarters in ascending order.
16. Run the report.

All four quarters are followed by the order methods.

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>E-mail</th>
<th>Fax</th>
<th>Mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camping Equipment</td>
<td>17,784,926.18</td>
<td>23,003,650.88</td>
<td>19,776,405.72</td>
<td>29,149,008.14</td>
<td>14,372,929.22</td>
<td>4,813,897.1</td>
<td>4,661,985.26</td>
</tr>
<tr>
<td>Golf Equipment</td>
<td>4,324,650.26</td>
<td>9,194,402.32</td>
<td>4,807,200.12</td>
<td>7,579,212.88</td>
<td>3,857,163.62</td>
<td>1,552,172.56</td>
<td>1,680,092.3</td>
</tr>
<tr>
<td>Mountaineering Equipment</td>
<td>3,318,640.62</td>
<td>6,587,232.12</td>
<td>4,574,665.38</td>
<td>6,410,811.98</td>
<td>3,297,131.46</td>
<td>1,120,329.38</td>
<td>973,246.5</td>
</tr>
<tr>
<td>Outdoor Protection</td>
<td>656,697.26</td>
<td>1,107,571.32</td>
<td>986,668.66</td>
<td>340,177.74</td>
<td>488,132.36</td>
<td>176,487.44</td>
<td>221,207.88</td>
</tr>
<tr>
<td>Personal Accessories</td>
<td>5,323,801.18</td>
<td>8,266,899.14</td>
<td>7,529,072.74</td>
<td>10,774,092.8</td>
<td>5,042,212.12</td>
<td>1,662,275.22</td>
<td>1,670,735.32</td>
</tr>
</tbody>
</table>

Charts

You can use Report Studio to create many chart types, including column, bar, area, and line charts.

You can also create custom charts that combine these chart types.

Tip: To view the available chart types, from the File menu, click New, and then double-click the chart icon. You can also view the available chart types by adding a Chart object from the toolbox tab in the Insertable Objects pane to an existing report.

We recommend that you work through the chart samples in the Try It Yourself appendix to familiarize yourself with some of the capabilities of charts in Report Studio. For more information, see "Try It Yourself - Create Charts" (p. 175).

For information about different chart types, see "Chart Types" (p. 211).

You can also find information about how to create a chart in the Report Studio Tour.

To create charts, you drag items from the Insertable Objects pane to the following drop zones:
- measures
- columns, bars, lines, areas, or points to represent data series
- groups, clusters, or stacks to represent categories of related data series

The following illustrates a typical chart as it appears in Cognos Viewer.
The following illustrates the same chart as it appears in the Report Studio interface. The y-axis icon is selected, and the Axis titles icon is expanded.

Example - Create a Column Chart to Plot Order Trends

You are a report author at The Great Outdoors Company. You are requested to create a chart that shows the contribution that each order method makes to revenue. You decide to create a column chart because it emphasizes the values of each order method for each year.

Steps
1. In Cognos Connection, go to the GO Sales and Retailers package.
2. Click the Report Studio link.
   Report Studio starts.
3. From the File menu, click New.
4. Click Chart and click OK.
5. In the Chart group pane, click Column.
6. In the Chart type pane, click Column with 3-D Visual Effect.
Chapter 2: Types of Reports

7. Click OK.

8. In the Insertable Objects pane, on the source tab, expand Orders and add the following data:
   • Drag Revenue to the Measure (y-axis) drop zone.
   • Drag Order year to the Series drop zone.
   • Drag Order method to the Categories (x-axis) drop zone.

9. Click the Order Year icon in the Series drop zone, and then from the Data menu, click Sort Ascending.

10. Save the chart:
    • In the Name box, type Order Trends
    • Leave the default destination folder as Public Folders, and click OK.

11. Click the run button on the toolbar, and view the report.

![Customize a Chart](image)

**Customize a Chart**

After you create a chart, you can customize it to suit your needs.

For example, the following chart was customized by:

- changing the palette
- changing the background
- adding a baseline
- adding a note
- formatting the axis values

You can make these and many other changes by changing the default properties of a chart.
You select the element in Report Studio to view its properties in the Properties pane. Some properties are dependent on the existence of other properties.

If you are familiar with using conditional variables, you can customize the chart to change appearance or provide information in response to expressions or conditions.

When you change a chart property, you usually do not see the change until you run the report. Changes to the properties of labels and titles are reflected immediately.

These are some of the properties you can change in charts. These properties are available when you select the chart object, unless specified otherwise in the Action to perform in the Properties pane column.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action to perform in the Properties pane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hide or show the title, subtitle, or footer</td>
<td>Under Chart Titles, change the Title, Subtitle, or Footer property.</td>
</tr>
<tr>
<td>Hide or show the legend, baselines</td>
<td>Under Chart Annotations, change the Legend, Baselines, Markers, or Notes property.</td>
</tr>
<tr>
<td>(p. 61), markers, or notes (p. 62)</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hide or show the axes</td>
<td>Under Axes, change the Y1 Axis, Y2 Axis, or Ordinal Axis property.</td>
</tr>
<tr>
<td>Hide or show the axis title or axis line</td>
<td>Select the y-axis or the ordinal axis. Under General, change the Axis Line or Axis Title property.</td>
</tr>
<tr>
<td>Hide or show the gridlines</td>
<td>Select the y-axis or the ordinal axis. Under General, change the Gridlines or Minor Gridlines property.</td>
</tr>
<tr>
<td>Hide or show the border around the legend</td>
<td>Select the legend icon. Under General, change the Borders property.</td>
</tr>
<tr>
<td>Hide or show the border around the chart object</td>
<td>Under Box, change the Border property.</td>
</tr>
<tr>
<td>Hide or show the tooltips</td>
<td>Under Chart Labels, change the Tooltips property.</td>
</tr>
<tr>
<td>Note: Some versions of Acrobat Reader do</td>
<td></td>
</tr>
<tr>
<td>not support tooltips.</td>
<td></td>
</tr>
<tr>
<td>Change y-axis properties, such as range,</td>
<td>Select the y-axis. Under General, change the Minimum Value, Maximum Value, Scale Interval, or Scale property.</td>
</tr>
</tbody>
</table>
Chapter 2: Types of Reports

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action to perform in the Properties pane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change the data format</td>
<td>Select the y-axis. Under Data, change the Data Format property.</td>
</tr>
<tr>
<td>Change ordinal axis properties, such as label truncation, skip interval, and so on</td>
<td>Select the ordinal axis. Under General, select the Truncation, Allow Rotation, Allow Stagger, or Allow Skip property.</td>
</tr>
<tr>
<td>Change the white space around the chart</td>
<td>Under Box, select the Padding or Margin property.</td>
</tr>
<tr>
<td>Change the color or pattern in the palette for columns, lines, and areas</td>
<td>Under Color &amp; Background, select the Palette or Conditional Palette property.</td>
</tr>
<tr>
<td>Apply a palette to a series</td>
<td>Under Color &amp; Background, select the Series Color property.</td>
</tr>
<tr>
<td>Change the default color or font (p. 60) for all chart elements</td>
<td>Under Color &amp; Background, change the Background Color, Foreground Color, or Fill Effects property.</td>
</tr>
<tr>
<td>Override the default font or color for axes and chart values</td>
<td>Click the lock icon in the toolbar to unlock the chart object, select the chart body by clicking between the axes, and change the Font, Background Color, Foreground Color, or Fill Effects property.</td>
</tr>
<tr>
<td>Resize the chart</td>
<td>Under Positioning, change the Size &amp; Overflow property.</td>
</tr>
<tr>
<td>Change the 3-D appearance of a chart</td>
<td>Under General, change the Depth or Visual Angle property.</td>
</tr>
<tr>
<td>Insert a background image or watermark in the chart body, that is, the space between the axes</td>
<td>Click the lock icon in the toolbar to unlock the chart object, select the chart body by clicking between the axes, and change the Background Image property.</td>
</tr>
<tr>
<td>Insert a background image or watermark in the chart object</td>
<td>Under Color &amp; Background, change the Background Image property.</td>
</tr>
<tr>
<td>Go to another report</td>
<td>Under Data, change the Drill Throughs property.</td>
</tr>
</tbody>
</table>

**Steps**

1. Select the chart or chart element that you want to change:
   - To change general properties, such as size and color, click the chart object.
   - To change specific chart elements, such as a title or axis, click the element itself.
   *Tip:* To cancel a selection, press the Esc key.

2. In the Properties pane, click the property you want, and then make the desired changes.
   Ellipsis points (...) indicate that a dialog box provides further options.
   You may have to scroll to see all the properties.

**Customize the Colors of a Chart**

You can use the chart palette to control the colors of the columns, lines, or areas in a chart. For example, if you know that Telephone is the first in a data series of order methods and you want it to appear in blue, you use the palette to ensure that the first item in the series is blue.

You use a unique color, pattern, or gradient fill for each series in the chart. Patterns are useful when the report is printed on a black and white printer because colors do not print well in shades of gray.
Chapter 2: Types of Reports

Steps
1. Open the chart that you want.
2. Click the chart object.
3. In the Color & Background section of the Properties pane, click the ellipsis points (…) of the Palette property.
4. In the Palette dialog box, click the new palette entry button to define a new palette entry:
   - To apply color, click Color, specify the color properties, and click OK.
   - To apply a gradient, click Gradient, specify the Direction, From color, and To color properties, and click OK.
   - To apply a pattern, click Pattern, specify the Pattern, Foreground color, and Background color properties, and click OK.
     Tip: You can also select a predefined palette from the Palettes drop-down list.
5. Click OK.
6. Repeat steps 4 and 5 for each chart series.

Tips
- To delete a palette definition, select the definition in the Palette box and click the delete button.
- To change the order in which the colors, gradients, or patterns appear in the chart, use the arrow buttons under the Palette box to change their position.
- To copy and paste a palette, open the palette dialog box and press Ctrl+C to copy the palette to the clipboard. Close the palette dialog box. Select another chart, open the palette dialog box, and press Ctrl+V to paste the palette from the clipboard.

Example - Customize the Palette in the Order Trends Chart
You are a report author at The Great Outdoors Company. You have created a column chart that shows the contribution each order method makes to revenue.

You decide to give each column a distinctive look to better differentiate the values of each order method for each year.

Before you can try this example, you must create the chart in "Example - Create a Column Chart to Plot Order Trends" (p. 55).

Steps
1. Open the Order Trends chart.
2. Click the chart object.
3. In the Color & Background section of the Properties pane, click the ellipsis points (…) of the Palette property.
4. Click the Color link.
5. On the Web Safe Colors tab of the Color dialog box, click a medium blue color.
6. Click OK.
7. Click the new palette entry button, and then click Gradient.
8. In the Direction list, click Down.
9. Click the From color link.
10. On the Web Safe Colors tab of the From Color dialog box, click a medium blue color and click OK.
11. Click the To color link.
12. On the Web Safe Colors tab of the To Color dialog box, click a lighter blue color and click OK.
13. Click the new palette entry button, and then click Pattern.
14. In the Pattern box, click a diagonal line pattern.
15. Click the Foreground color link.
16. On the Web Safe Colors tab of the Foreground Color dialog box, click a blue color and click OK.

17. Click OK again to close the Palette dialog box.

18. Click the chart type icon in the Series drop zone.

19. In the General section of the Properties pane, change Borders from Hide to Show.

20. Save the chart.

### Change a Chart Background

You can use a solid color, a pattern, or a gradient fill effect to customize the chart background. You can also use an image as a background for a chart. For more information, see "Customize a Chart" (p. 56).

**Steps**

1. Open the chart that you want.
2. Click the chart object.
3. Click the lock icon in the toolbar to unlock the chart object, select the chart body by clicking between the axes, and in the Properties pane, under Color & Background, click the ellipsis points (...) of the Fill Effects property.
4. In the Effect list, choose a color, a gradient fill effect, or a pattern:
   - To apply a color, click the Color link and specify the color properties.
   - To apply a gradient fill effect, click Gradient and then specify the Direction, From color, and To color properties.
   - To apply a pattern effect, click Pattern and then specify the Pattern, Foreground Color, and Background Color properties.
     The foreground color is the color of the selected pattern. The background color is the color of the area behind the pattern.
5. Click OK.

**Tip:** To remove a background fill effect, click None.

### Example - Change the Background of the Order Trends Chart

You are a report author at The Great Outdoors Company. You created a column chart that shows the contribution that each order method makes to revenue.

You decide to give your chart a visually interesting background fill.

Before you can try this example, you must create the chart in "Example - Customize the Palette in the Order Trends Chart" (p. 59).

**Steps**

1. Open the Order Trends chart.
2. Click the chart object.
3. Click the lock icon in the toolbar to unlock the chart object, select the chart body by clicking between the axes, and in the Properties pane, under Color & Background, click the ellipsis points (...) of the Fill Effects property.
4. In the Effect list, click Gradient.
5. Specify a gradient that goes from yellow to white:
   - In the Direction list box, click Up.
   - Click the From color link.
   - On the Web Safe Colors tab, click a light yellow color and click OK.
   - Leave white as the To color.
6. Click OK.
7. Save the chart.
Add a Baseline to a Chart

You can add one or more baselines to a chart. Baselines are horizontal or vertical lines which cut through the chart to indicate major divisions in the data. For example, you can add a baseline to show a sales quota or break-even point.

You can add baselines based on

- a numeric value
- a query calculation or layout calculation
- a data minimum, maximum, mean, or percentile
- a percentage along the axis

Steps
1. Open the chart that you want.
2. Click the chart object.
3. In the Chart Annotations section of the Properties pane, click Baselines, and then click the ellipsis points (...).
4. Click the new button.
5. Click the desired type in the list and provide any necessary criteria, such as a value or percentage.
6. Click OK.

A baseline icon appears in the Markers, Notes, and Baselines box.
7. If you want to define the line style, click the baseline icon.
8. If you want to define the text style, click the baseline text icon.
9. To add more baselines, repeat steps 1 to 6.

Tip: To delete a baseline, click its baseline icon and click the delete button.

Example - Add a Baseline to the Order Trends Chart

You are a report author at The Great Outdoors Company. You created a column chart that shows the contribution that each order method makes to revenue.

You decide to add a baseline to indicate the mean revenue for the Order Trends chart. Before you can try this example, you must create the chart in "Example - Change the Background of the Order Trends Chart" (p. 60).

Steps
1. Open the Order Trends chart.
2. Click the chart object.
3. In the Chart Annotations section of the Properties pane, click Baselines, and then click the ellipsis points (...).
4. Click the new button.
5. Click the Data Mean type in the list, leave Distance From Mean at zero, and click OK twice.

A baseline icon appears in the Markers, Notes, and Baselines box.
6. Click the baseline icon to define the line style.
7. In the General section of the Properties pane, change the Line Color to Red.
8. In the General section of the Properties pane, change the Line Style to Dash.
9. Save the chart.

Customize the Lines in a Chart

You can change the color, style, and weight of the lines in a chart. You can apply these changes to the x-axis and y-axis lines, as well as to the major and minor gridlines.

You can also
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- specify whether to use a linear or a logarithmic scale for the y-axis
- specify a scale interval for the y-axis
- show or hide major and minor gridlines
- show regression lines on scatter charts (p. 217) and bubble charts (p. 217)

**Steps**
1. Open the chart that you want.
2. Click the y-axis icon or the x-axis icon.
3. In the General section of the Properties pane, click Axis Line, Gridlines or Minor Gridlines, then click the ellipsis points (...).
4. Click the color, weight, and style that you want.
5. Click OK.

**Tips**
- To specify a linear or logarithmic scale for the y-axis, in the General section of the Properties pane, change the Scale property.
- To specify a scale interval for the y-axis, in the General section of the Properties pane, change the Scale Interval property.
- To show minor gridlines, in the General section of the Properties pane, click Minor Gridlines, click the ellipsis points, select the Show minor gridlines check box, and type a number under Number of minor gridlines.
- To show regression lines, right click a scatter chart or bubble chart and, in the Chart Annotations section of the Properties pane, change the Regression Line property to Show.

**Add a Marker to a Chart**

Markers are notations along the axis of a chart that designate a point on the scale that may help you analyze or understand the data. The numeric position of the marker can be based on
- a numeric value
- a query calculation
- a layout calculation
- a statistical minimum
- a statistical maximum
- a data mean
- a data percentile
- a percent on the axis

**Steps**
1. Open the chart you want.
2. Click the chart object.
3. In the Chart Annotations section of the Properties pane, click Markers, and then click the ellipsis points (...).
4. Click the new button and specify the Numeric position type, Marker label, Marker shape, Numeric value, and Color properties.
5. Click OK twice.
   The new marker appears in the Markers, notes, and baselines box.
6. Run the chart to view the marker.

**Tip:** To delete a marker, click the marker icon and text, and then click the delete button.

**Add a Note to a Chart**

Notes are pieces of text that appear in the chart. You can add notes to a chart to provide additional detail, such as explanatory information, or to highlight a notable value.
You can use text, an item label or value, or a report expression as the source for a note. Notes overwrite whatever is under them. It is the responsibility of the report author to properly position them.

**Steps**
1. Open the chart you want.
2. Click the chart object.
3. In the Chart Annotations section of the Properties pane, click Notes, and then click the ellipsis points (...).
4. Click the new button and click OK.
   A note icon appears in the Markers, notes, and baselines box.
5. Click the note icon to define size, position, and note border in the Properties pane.
   The location and size are statically set based on the number of pixels.
6. Double-click the note text icon to define the text.

**Tip:** To delete a note, click the note icon, and then click the delete button.

**Example - Add a Note to the Order Trends Chart**

You are a report author at The Great Outdoors Company. You created a column chart that shows the contribution that each order method makes to revenue.

You decide to add a note to draw attention to an unexpected result.

Before you can try this example, you must create the chart in "Example - Add a Baseline to the Order Trends Chart" (p. 61).

**Steps**
1. Open the Order Trends chart.
2. Click the chart object.
3. In the Chart Annotations section of the Properties pane, click Notes, then click the ellipsis points (...).
   The Notes dialog box appears.
4. Click the new button, and then click OK.
   A note icon appears in the Markers, notes, and baselines section.
5. Click the note icon.
6. In the General section of the Properties pane, change Bottom Position to 285 and Left Position to 110.
   The location and size are statically set based on the number of pixels.
7. In the General section of the Properties pane, click Note Border, then click the ellipsis points (...).
8. Select the Note border check box, click a line color and line style, and then click OK.
9. Run the report to view the note.
   If necessary, change the position again.
10. Double-click the note text icon and type
    Fax orders increased when declines were expected.
11. Save the chart.

**Example - Format the Axis Values of the Order Trends Chart**

You are a report author at The Great Outdoors Company. You created a column chart that shows the contribution that each order method makes to revenue.

You decide to format the y-axis values to make them easier to read.

Before you can try this example, you must create the chart in "Example - Add a Note to the Order Trends Chart" (p. 61).
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**Steps**
1. Open the Order Trends chart.
2. Click the y-axis icon.
3. In the Data section of the Properties pane, click Data Format, and then click the ellipsis points (...).
4. Under Format type, click Number.
5. Under Properties, click Scale, in the drop-down list click -3, and click OK.
7. Double click the y-axis title icon and type Revenue (thousands)
8. Save the chart.

**Example - Create a Drill-through Chart**

You create a drill-through report to link two reports containing related information. You can then access related or more detailed information in one report by selecting a value in the chart.

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a chart that shows the revenue for each product line and allows the reader to drill through from the revenue chart to view the product details for any item selected. You create two reports, a target list report that contains the details for the item, and a source chart that shows the product line revenue.

For more information about using drill-through reporting in Report Studio, see "Set Up Drill-through Access in a Report" (p. 164).

**Steps to Create the Target Report**
1. In the Cognos 8 Welcome page, click the Report Studio link.
2. Select the package GO Sales and Retailers.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   - Product line
   - Product type
   - Product name
   - Description
   - Introduction date
   - Product image
   Tip: You can find these data items in the Products and Orders folders.

Now you must create a filter to uses as a drill-through parameter. A drill-through parameter begins and ends with a question mark (?) symbol.

6. Click the filters button.
7. Click the add button and type the following in the Expression Definition window: 
   
   [gosales_goretailers].[Products].[Product line]=?p_PL?

8. Click OK.
9. Save the report as Product Line Details.

**Steps to Create the Source Chart**
1. Create a new report.
2. In the New dialog box, click Chart and click OK.
3. In the Chart group pane, click Column.
4. In the Chart type pane, click Column.
5. Click OK.

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6. In the Insertable Objects pane, on the source tab, expand Orders.
7. Drag Revenue to the Measure (y-axis) drop zone.
8. Drag Order method to the Series drop zone.
9. Expand Products and drag Product Line to the Categories (x-axis) drop zone.
10. From the Data menu, click Drill Behavior.
11. In the Basic tab, in the Report Drill Capabilities, select the Allow drill through from a package check box.
12. Click OK.
13. Right-click the chart object and click Drill Throughs.
14. Click the New Drill Through button.
15. Under Report, select the Product Line Details report you created previously and click Open.
17. Under Format, select HTML.
18. Click the edit button.
   Any existing drill-through parameters appear. You see the parameter you created for Product Line Details.
19. For item p_PL, under Method, click Pass data item value, and under Value, click Product line.
20. Click OK twice.
21. Save the chart as Product Revenue.
22. Click Run.

When the report is run, the list will show the product lines as clickable links. When a product line is clicked, the second report will be run for that product line.

Specify the Chart Label Text and Value Text Shown

You can specify which labels and values to use when generating the text shown on the chart.

When you show all the labels and values on some chart types, such as scatter charts, bubble charts, and polar charts, the text shown may be too long. For example, a bubble chart may show the values and the labels for the series, the categories, the x and y measures, and the bubble size.

Steps
1. Open the chart you want.
2. Click the chart object.
3. In the Chart Labels section of the Properties pane, click Values, and then click the ellipsis points (...).
4. Click the labels and values that you want to show.
5. Click OK.

Specify the Properties of a Gauge Chart

The default gauge chart uses a band divided into thirds that runs from green to red. You can change the properties to improve the presentation of your data. For example, you may want to change the colors in the band, or you may want to use a number instead of a percentage as a threshold.

Steps
1. Open the gauge chart that you want.
2. Click the chart object.
3. In the Color & Background section of the Properties pane, click the ellipsis points (...) of the Gauge Palette property.
4. Specify the following properties:
   • To change the color of a palette entry, under Palette select the color, click Color, specify the color properties, and click OK.
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- To change the boundary value of a palette entry, under Palette select the boundary value and specify the color properties, and click OK.
- To define a new palette entry, click the new palette entry button.
- To choose a threshold style, click Palette, and click a style in the drop down list.

5. Click OK.

Tips
- You can choose whether to use discrete colors or continuous colors.
- To use a number instead of a percentage as a boundary, clear the Percentage check box, and then type a number in the Numeric boundary box.
- To copy and paste a gauge palette, open the gauge palette dialog box and click the copy icon to copy the palette to the clipboard. Close the palette dialog box. Select another chart, open the palette dialog box, and click the paste icon to paste the palette from the clipboard.

Create a Drill-up and Drill-down Chart

If you use a dimensionally modeled data source, you can create a chart that allows you to drill down to lower-level data or drill up to higher-level data.

Drilling up and down allows you to view more general or more detailed information on your data within a predefined dimensional hierarchy.

This is an example of a dimensional hierarchy:
  Years - Year - Quarter - Month

Before you begin, ensure that you are using a dimensionally modeled data source.

For more information about using drill-up and drill-down reporting in Report Studio, see "Create a Drill-up/Drill-down Report" (p. 167).

Steps
1. Open a chart that uses a dimensionally modeled data source.
2. From the Data menu, select Drill Behavior.
3. On the Basic tab, in the Report Drill Capabilities, select the Allow drill up and down check box.
   By default, the system determines which items can be drilled on, based on the dimensional structure.
   On the Basic tab, you can make drilling unavailable for any data item by selecting the parameter in either the Disable drill up for box or the Disable drill down for box.
   On the Advanced tab, you can change the drill-up or drill-down behavior for any parameter by selecting the parameter and then choosing one of the desired behaviors.
4. Click OK.

The chart generates links for any item that can be drilled down on.
You can drill down or drill up by right clicking and choosing the action from the context menu. The menu items are unavailable if an item cannot be drilled up or down on.

Example - Show Values in the Chart Legend

You are a report author at The Great Outdoors Company. You are requested to create a chart that shows the quantity of items sold for each product line by order method. To show how much the quantity represents in revenue, you want to show the revenue for each order method in the legend.

Steps
1. In Cognos Connection, go to the GO Sales and Retailers package.
2. Click the Report Studio link.
   Report Studio starts.
3. From the File menu, click New.
4. Click Chart and click OK.
5. In the Chart group pane, click Column.
6. In the Chart type pane, click Column.
7. Click OK.
8. In the Insertable Objects pane, on the source tab, expand Orders.
9. Drag Quantity to the Measure (y-axis) drop zone.
10. Drag Order method to the Series drop zone.
11. Expand Products and drag Product Line to the Categories (x-axis) drop zone.
12. From the Structure menu, clear Lock Page Objects.
   If you do not clear Lock Page Objects, you will be unable to insert a text item in the legend.
13. In the Insertable Objects pane, on the toolbox tab, drag a text item into the legend next to Order method.
14. In the Text box, type
   - Revenue:
   You must insert a trailing space after the colon.
15. In the Insertable Objects pane, on the source tab, drag Revenue to the right of the text item.
16. Click the run button on the toolbar, and view the report.
   The revenue is listed beside each legend item.
   Tip: To reposition the legend in the chart, click the legend icon, change the Absolute Position property to Yes, and specify the Left Position and Top Position values.
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Define Query Context When Customizing Legend Entries, Legend Titles, or Axis Labels

You want to use a revenue expression as a chart legend title. If you get an error message saying that the query context of a layout object cannot be determined, you must define the property list for the item it refers to. You must first add the desired data item to the query before you can define its property list.

For more information, see "Specify the List of Properties for a Layout Object" (p. 117).

**Steps**

1. Open the chart that you want to customize.
2. Click the query explorer button.
3. Click the query icon.
4. In the Insertable Objects pane, drag the desired item to the Data Items window to add it to the query.
5. Click the page explorer button to return to the chart.
6. In the Insertable Objects pane, drag the desired item to the layout object.
7. In the Properties pane, under Data, click the click the ellipsis points (…) to open the Properties dialog box.
8. Select the data item to define.
9. Click OK.

Example - Customize the Axis Titles

You are a report author at The Great Outdoors Company. You are requested to create a chart that shows the total revenue for the report in the horizontal axis title.

Charts contain several titles, such as axis titles, report titles and subtitles, and the legend title.

By default, the axis titles are managed for you. To customize an axis title, you drag text items or data items to the axis title area in the chart. You can use combinations of text, data items, and report expressions in titles.

**Steps**

1. In Cognos Connection, go to the GO Sales and Retailers package.
2. Click the Report Studio link.
   Report Studio starts.
3. From the File menu, click New.
4. Click Chart and click OK.
5. In the Chart group pane, click Column.
6. In the Chart type pane, click Column.
7. Click OK.
8. In the Insertable Objects pane, on the source tab, expand Orders.
9. Drag Revenue to the Measure (y-axis) drop zone.
10. Drag Order method to the Series drop zone.
11. Expand Products and drag Product line to the Categories (x-axis) drop zone.
12. Expand Axis titles.
13. Click the horizontal axis title icon.
   **Tip:** You can use the Properties pane to change the axis title properties, such as font & text, positioning, color & background, and so on.
14. In the Insertable Objects pane, on the toolbox tab, drag a text item into the horizontal axis text.
15. In the Text box, type
   Product Line - Total Revenue:
You must insert a trailing space after the colon.

16. In the Insertable Objects pane, on the toolbox tab, drag a query calculation to the right of the text.

17. In the Create Calculation dialog box, type

   Total Revenue for Report

18. Click OK.

19. In the Expression Definition box, type the expression:

   total ([Revenue] for report)

20. Click the run button on the toolbar, and view the report.

   The title shows the calculated total revenue for Product line.

Tip: You can use conditional formatting (p. 155) to conditionally style the titles.

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**Example - Create a Conditional Palette**

You are a report author at The Great Outdoors Company. You are requested to create a chart that shows one pie slice for each order method. You also want to highlight the pie slice for the order method that has the highest quantity.

You create a condition that shows you which order method has sold a quantity greater than 550,000.

**Steps**

1. In Cognos Connection, go to the GO Sales and Retailers package.
2. Click the Report Studio link.
   
   Report Studio starts.
3. From the File menu, click New.
4. Click Chart and click OK.
5. In the Chart group pane, click Pie, Donut.
6. In the Chart type pane, click Pie.
7. Click OK.
8. In the Insertable Objects pane, on the source tab, expand Orders.
9. Drag Quantity to the Measure drop zone.
10. Drag Order method to the Pie Slices drop zone.
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You want to create a condition that shows you which order method has sold a quantity greater than 550,000.

11. Select the pie chart.

12. In the Color & Background section of the Properties pane, open the Conditional Palette properties dialog box.


14. In the New Variable dialog box, type HighQuantity

15. Click OK.

16. In the Expression Definition box, type the expression:

   [Query1].[Quantity] > 550000

17. Click OK to close the expression editor. Leave the Conditional Palette dialog box open.

You want to use a pattern to highlight the best performing order method.

18. Under Effect, click Pattern.

19. Under Pattern, click a pattern.

20. Click OK.

21. In the Box section of the Properties pane, change the Borders property from Hide to Show.

22. Run the report.

Maps

Report Studio provides a set of maps that you can use to represent tabular data in a spatial context. For example, on a map of the world, countries can be colored to represent the level of revenue. To edit the maps or create additional maps use Map Manager. For more information see "Edit a Map" (p. 78).

Maps are most often used to show geographical areas, but they can be used to show other spatial information, such as a floor plan in a building, seats in an airplane, or parts of the human body.

A map in Cognos 8 consists of a collection of layers. Each layer contains different information and acts like a transparency that is placed on top of the map. Each layer adds more information to the map. For example a map of the world may contain information related to countries on one layer and information related to cities on another level.
Report Studio maps provide the following three types of layers:

- **Region layer**
  Specifies the regions on a map to be differentiated according to values in the data source. For example, to show the revenue level for each country on a map of the world, choose Country as the region layer and then specify that the color of each country is based on the revenue value for that country. Regions can be set up for drilling through to other reports.

- **Point layer**
  Specifies the points to be placed on a map. The color and size of the points is based on the data that you select. For example, you choose to show cities as points on a map and set the color of each point by revenue and the size of each point by profit. Points can be set up for drilling through to other reports.

- **Display layer**
  You can show or hide items such as grid lines or capital cities. This layer is determined in the map file and not in the data source.

**Note:** If you intend to create CSV or XML output from your map, use only a point layer or a region layer. CSV and XML do not support the simultaneous use of both layers in the same map. Only one layer will be rendered in the output.

**Parts of a Map Report**

The following shows the parts of a map as they appear in the Report Studio interface.
Example - Create a Map Report

You are a report author at The Great Outdoors Company. You are asked to show how revenue for the company is distributed throughout the world. This information can be shown in tabular format using a list report, but a map will create a more meaningful presentation. You decide to create a report that contains a map of the world showing the distribution of revenue by country.

Steps
1. In Cognos Connection, go to the GO Sales and Retailers package.
2. Click the Report Studio link.
   Report Studio starts.
3. From the File menu, click New.
4. Click Map and click OK.
5. In the Choose Map dialog box, in the Maps pane, expand the folder World and click World.
6. In the Region Layers box, click Countries + Territories.
7. In the Point Layers box, click None.
   Tip: You can select multiple display layers or deselect a display layer by pressing Ctrl+right-click.
8. Click OK.
   Tip: You can return to the Choose Map dialog box at any time by double-clicking the map background.
9. Click the run button on the toolbar, and view the map.
Example - Define Data Values for the Region Layer

The map that you created in the previous topic is not yet linked to a data source. You will now specify the data values from your data source that will determine the color of each region.

Steps
1. In the Insertable Objects pane, expand Orders.
2. Drag Revenue to the Color drop zone.
3. In the Insertable Objects pane, expand Countries.
4. Drag Country to the Location drop zone.
5. Select the map object by clicking the map background.
6. Run the report.

Ignore Data with no Features

You can specify that you do not require a match for each item in the data source. The report can then run successfully even if the map does not contain a match for each item in the data source for a particular object.

For example, an error message appears and the report does not run if you are using cities in the point layer and a city in the data source does not have the same name in the map file. If you ignore data with no features, then the data that has a match in the map file will be plotted and the data that does not have a match will be omitted.

Steps
1. Click the background of the map.
2. In the Data section of the Properties pane, click the Ignore Data with No Features property.
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3. Set the value to Yes.

Match Data Values to Names in the Map File

If the Ignore Data with No Features property is set to No, then each object that is called from the data source must have a matching label in the specified layer of the map file. For example, if your data source has a country named United States and the layer in the map file labels the same country USA, then there is a mismatch that must be corrected. Report Studio only makes you aware of a mismatch if each object in your data source does not have a corresponding label in the map file. If there are extra labels in the map file that do not have a match in the data source, the report will run without an error message.

A mismatch between your data and the map file must be corrected by the report author. It can not be corrected by a consumer of the map report at run time. There are two ways to correct a mismatch between your data and the labels in the map files. You can use Map Manager to edit the labels in the layers of the map file, or you can use the dictionary property to create an alias for each mismatched object. When you use the dictionary property, it resolves the mismatch only for a single report, and is not shared with other reports. If you intend to continue using a map with the same data source, it is best to edit the map in Map Manager so that the labels match the objects in your data source.

For information about using Map Manager, see the Map Manager Installation and User Guide.

Steps to Create an Alias

1. Select the map object.

The Title Bar of the Properties pane now shows the word Map.

2. In the General section of the Properties pane, click Dictionary, then click the ellipses points (....).

3. Click the new button.

4. In the Dictionary Entry dialog box, click Search.

5. In the Search string box, type a word or part of a word that you want to search the map file for.

For example, if you are searching for United States, type in part or all of the name.

6. In the Search map layer box, click the layer that you want to search, and click Search.

7. In the Matching features box, click the label that you want to match your data source to and click OK.

8. In the Alias box, type the name as it appears in the data source and click OK.

For example, if the country in your data source is named USA, type USA as the alias.

To find out the name for the objects in your data source, run a list report. For example, you can run a list report to show the names of all the countries in your data source. For more information see “List Reports” (p. 43).

Define Data Values for the Point Layer

The Point layer in a map is used to visually represent data for point locations, such as cities or sales outlets. Both the color and size of points can be based on data from your data source.

Steps to Set the Color and Size of Points

1. Open the Choose Map dialog box:

- When you create a new map report, this dialog box appears automatically.
- If you are already in a map report, double-click the map background.

2. In the Point Layers box, select the layer containing the points that you want shown on the map.

For example, on a map of the world you may want the points to represent cities.

3. Click OK.

4. In the Insertable Objects pane, drag an object to the Color drop zone in the Point Layer.
For example, to have the color of the point based on revenue, drag Revenue from the Insertable Objects pane to the Color drop zone.

5. In the Insertable Objects pane, drag an object to the Size drop zone in the Point Layer.

Steps to Set the Location of Points
1. In the Insertable Objects pane, drag an object to the Location drop zone in the Point Layer. The object must be supported in the map file as a point location. For example, in the World sample map, city is supported as a point location, but country is not.
2. If you need to refine the location, drag an object to the Refine Location drop zone. Use this drop zone when there is more than one location with the same name. For example, if you try to run a report with cities in the point layer, and there is more than one city in your data source with the same name, the report does not run. An error message indicates that there are cities in your data source with duplicate names. You can differentiate the cities by using the data object Region to refine the location.

Add Another Color to the Region or Point Layer
You can add colors for regions or points and specify values to determine when those colors are shown.

Steps
1. In the report, click the Region Layer or Point Layer.
2. In the Color & Background section of the Properties pane, click Palette, and then click the ellipses points (...).
3. Click the new button, and click Color.
4. A new color is added to the list of colors.
5. With the new color selected, click Color in the right pane of the dialog box, and select a color.
6. Change the percentage boundaries for the colors.
    Tip: To specify absolute values rather than percentages, clear the Percentage check box.
7. Click OK.

Specify the Size of Points
The size of the points used on a map is defined in the Properties pane.

Steps
1. In the point layer, click the measure in the Size drop zone. For example, if the measure is Revenue, click it.
2. In the General section of the Properties pane, click Minimum Size, and select or type the minimum point size for points on the map.
3. Click Maximum Size, and select or type the maximum point size for points on the map.

Add Titles, Subtitles, Footers, and Axis Title
You can add map titles, subtitles, and footers. In addition, the axis title is shown below the map. By default, the axis title shows the name of the map specified in the map file.

Steps
1. Select the map object.
2. In the Chart Titles section of the Properties pane, click the Title, Subtitle, Footer, or Axis Title property and click Show.
3. Double-click in the box that appears on the report and type the text that you want. By default, the axis title uses the name of the map.
Chapter 2: Types of Reports

Add Legend Titles

There are legend titles for the entire legend, for the color of the regions, for the color of the points, and for the size of the points.

Steps to Change the Legend Title for the Entire Map

1. If the legend title is not showing, click the legend icon. In the General section of the Properties pane, set the Legend Title to Show.
2. In the report, double-click the legend title and type the title you want.

Steps to Change the Legend Title for the Region Color, Point Color, or Point Size

• By default the legend titles are taken from the object you’ve selected from the data source. To change a title, do one of the following:
  • In the Insertable Objects pane, drag a text or calculation object to the Color Legend Title drop zone in the Region Layer or Point Layer, or the Size Legend Title drop zone in the Point Layer.
  • Double-click the Color Legend Title or Size Legend Title drop zone, to change from the default legend title, then double-click the drop zone again. In the Text dialog box, type text for the legend title.

Add a Note to a Map

You can add one or more notes, determine their position in the map report, and specify borders around notes.

Steps to Add a Note

1. Select the map object.
2. In the Chart Annotations section of the Properties pane, click Notes, and then click the ellipsis points (...).
3. Click the new button, and click OK.
   A note icon with the words New Note appears in the report.
4. Click New Note next to the note icon.
5. In the Text Source section of the Properties pane, click the Text property, and then click the ellipsis points (...).
6. Type the text that you want to appear in the note.

Steps to Position a Note and Add a Border

1. In the report, click the note icon.
2. In the Positioning section of the Properties pane, type values to specify the bottom position, left position, height, and width for the note.
   The location of the note is defined by the number of pixels.
3. Use the Note Border property if you want to specify a border around the note.
4. Run the report to view the note.
   If necessary, change the position again.

Customize a Map

When you select an element in a map, you can view its properties in the Properties pane. Some properties are dependent on the existence of other properties.

If you are familiar with using conditional variables, you can customize the map to change appearance or provide information in response to expressions or conditions.

When you change a map property, you usually do not see the change until you run the report. Changes to the properties of labels and titles are reflected immediately.
These are some of the properties you can change in maps. These properties are available when you select the map object, unless specified otherwise in the Action to perform in the Properties pane column.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action to perform in the Properties pane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hide or show the title, subtitle, footer, or axis title</td>
<td>Under Chart Titles, change the Title, Subtitle, Footer, or Axis Title property.</td>
</tr>
<tr>
<td>Hide or show the legend</td>
<td>Under Chart Annotations, change the Legend property.</td>
</tr>
<tr>
<td>Hide or show map labels</td>
<td>Select the region or point layer. Under Chart Labels, change the Labels property.</td>
</tr>
<tr>
<td>Hide or show values on the map</td>
<td>Select the region or points layer. Under Chart Labels, change the Values property.</td>
</tr>
<tr>
<td>Hide or show the border around the legend</td>
<td>Select the legend icon. Under Box, change the Borders property.</td>
</tr>
<tr>
<td>Change the border around the map object</td>
<td>Under Box, change the Border property.</td>
</tr>
<tr>
<td>Hide or show the tooltips</td>
<td>Under Chart Labels, change the Tooltips property.</td>
</tr>
<tr>
<td>Note: Some versions of Acrobat Reader do not support tooltips.</td>
<td></td>
</tr>
<tr>
<td>Change the amount of white space around the map</td>
<td>Under Box, change the Padding or Margin property.</td>
</tr>
<tr>
<td>Change the default colors for all map elements</td>
<td>Under Color &amp; Background, change the Background Color, Foreground Color, or Fill Effects property.</td>
</tr>
<tr>
<td>Change the font and the alignment of text</td>
<td>Under Font &amp; Text, change the Font or Relative Alignment property.</td>
</tr>
<tr>
<td>Resize the map</td>
<td>Under Positioning, change the Size &amp; Overflow property.</td>
</tr>
<tr>
<td>Change the font for the legend</td>
<td>Select the legend icon. Under Font &amp; Text, change the Font property.</td>
</tr>
<tr>
<td>Change the format of values in the legend</td>
<td>Select the value in the region or point layer. Under Data, change the Data Format property.</td>
</tr>
</tbody>
</table>

**Steps**

1. Select the map object or map element that you want to change:
   - To change general properties, such as size and color, click the map object.
   - To change specific map elements, such as a layer or title, click the element itself.
   Tip: To cancel a selection, press the Esc key.

2. In the Properties pane, click the property you want, and then make the desired changes. Ellipsis points (…) indicate that a dialog box provides further options.
   You may have to scroll to see all the properties.

**Drill Through to Another Report From a Map**

You can link regions or points on a map to another report. For example, on a map of the world, you can specify that when you click on China, a map of China opens.
Chapter 2: Types of Reports

**Steps to Set Up a Filter in the Target Report**
1. Open the target report.
2. From the Data menu, click Filters.
3. On the Detail Filters tab, click the add button.
4. In the Available Components box, click the source or data items tab to select the data item you want to use.
   For example, if you want the target report to open when Canada is clicked in the source report, expand Countries and double-click Country.
5. In the Expression Definition box, type an operator after the data item or select an operator from the functions tab and then enter a value.
   For example, if are using the GO Sales and Retailers package and want the report to open when Canada is clicked in the source report, the expression would be as follows:
   
   ```
   [gosales_goretailers].[Countries].[Country]='Canada'
   ```
6. Save the target report.

**Steps to Set Up a Drill-Through Link in the Source Report**
1. Open the source report.
2. Select the region layer or the point layer.
3. In the Data section of the Properties pane, click Map Drills, and then click the ellipsis points (...).
4. In the Map Drills dialog box, click the new button.
5. In the Search String box, type the name of the feature you want to use for the drill-through link, select it from Matching Features box, then click OK.
   For example, if you want a report to open when you click on Canada, search on all or part of the word Canada then select Canada.
6. In the Drill Throughs dialog box, click the new button.
7. Click the ellipses points (...) beside the Report box, and select the target report.
8. Click OK.
9. Run the report.
   When you click the selected feature in the source report, the target report will open.

**Edit a Map**

Administrators and modelers use a Windows utility named Map Manager to import maps and update labels for maps in Report Studio. For map features such as country and city names, administrators and modelers can define alternative names to provide multilingual versions of text that appears on the map.

With Map Manager you can edit the labels in maps to be consistent with the object names in your data base.

For instructions, see the Map Manager Installation and User Guide.

**Additional Maps**

Additional maps are available from the Cognos Global Customer Services Web site. Much of the mapping data on the Web site is derived from MapInfo Corporation, the Cognos preferred provider for location intelligence. MapInfo provides a wide variety of global data including

- detailed accurate roads
- political, postal, and census boundaries
- industry-specific data, such as communication system boundaries, insurance risk related data, and business prospect data

The Cognos Global Customer Services Web site provides a list of data providers and descriptions of the map data that Cognos provides as part of Cognos 8.
**Location Intelligence**

Sophisticated mapping functionality, known as location intelligence, can be used for a broad range of business applications that extend the mapping capability of Cognos 8. MapInfo provides solutions that can be directly integrated with Cognos 8. These include the ability to dynamically create geographic filters and custom areas for aggregating data for ad-hoc analysis. Examples of business applications of location intelligence are listed in the following table.

<table>
<thead>
<tr>
<th>Business application</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target marketing</td>
<td>Learn who your best clients are and find more like them.</td>
</tr>
<tr>
<td>Network optimization and site location analysis</td>
<td>Put stores near your customers and look for gaps in geographical coverage.</td>
</tr>
<tr>
<td>Routing and work force optimization</td>
<td>Reduce the number of trucks you need and make your drivers more efficient.</td>
</tr>
<tr>
<td>e-government</td>
<td>Provide citizens with self-service opportunities.</td>
</tr>
<tr>
<td>Sales territory creation</td>
<td>Create balanced sales territories.</td>
</tr>
<tr>
<td>Economic development</td>
<td>Plan the development of your community.</td>
</tr>
<tr>
<td>Communications network planning</td>
<td>Avoid costly mistakes by putting cell towers in the right locations. Identify the locations of clients in your service area.</td>
</tr>
</tbody>
</table>

You can contact MapInfo for both data and location intelligence solutions through their Web site: [www.mapinfo.com](http://www.mapinfo.com).

**Repeaters**

Use repeaters to repeat items when you run the report. For example, you can use repeaters to create mailing labels, including customer names and addresses.

To build a repeater, drag the **Repeater** or **Repeater Table** object from the toolbox tab to the work area. Use repeaters to repeat items across a single row without a particular structure. For example, you want to create a list that contains Year, and Product line. For each year, you want all product lines to appear in a single row. To do this, create a list with Year as a column and with a repeater as a second column. Then insert Product line into the repeater. Use repeater tables to repeat items in a table structure. Drop the items you want in the repeater, and modify the properties of the repeater to obtain the results you want. For example, you can specify how many frames appear per page in a repeater table by typing values in the **Across** and **Down** properties.

**Convert a List into a Repeater**

You can convert a list into a repeater table to take advantage of an existing list.

**Steps**

1. Open the report that you want.
2. Click any part of the list.
3. From the **Structure** menu, click **Convert List to Repeater**.
Chapter 2: Types of Reports

Example - Create Mailing Labels

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create mailing labels for all of the company’s retailers.

Steps
1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click Repeater Table and click OK.
5. Click the repeater, click the select ancestor button in the Properties pane title bar, and click Repeater Table.
6. In the Properties pane, specify properties for the repeater:
   - For the Across property, type 2.
   - For the Down property, type 5.
   - Double-click the Table Properties property, select the Fixed size check box, and click OK.
7. In the Insertable Objects pane, on the toolbox tab, drag the Table object to the repeater.
   The Insert Table dialog box appears.
8. In the Number of columns box, type 1 and click OK.
9. Click the table, ensure that you see Table Cell in the Properties pane title bar, and modify the following properties:
   - Double-click Background Image, click Browse, click logo.jpg, and click OK.
   - In the Position box, click the align top right button.
   - In the Tiling box, click Do not tile and click OK.
   - Double-click Size & Overflow, and in the Height box, type 175, and click OK.
10. Click the table, click the select ancestor button in the Properties pane title bar, and click Table.
11. In the Properties pane, specify properties for the table:
    - Double-click Border.
    - In the Color box, click Black.
    - In the Style box, click Solid line.
    - In the Width box, click 1 pt.
    - Under Preview, click the all borders button and click OK.
    - Double-click Font, and under the Size box, click 8pt, and click OK.
12. In the Insertable Objects pane, on the toolbox tab, drag the Block object to the repeater 8 times to create 8 blocks.
13. Drag the Text Item object to the first block:
    - In the Text dialog box, type To: and click OK.
    - Click the text item.
    - Click the font button, click Bold, and click OK.
14. Click the first block, and, in the Properties pane, specify properties for the first block:
    - Double-click Padding, type 35 in the right box, click mm as the unit, and click OK.
    - Click Horizontal Alignment, and click Center.
15. In the Insertable Objects pane, on the source tab, expand Retailers.
16. Expand the Mailing address folder, and drag the seven data items to the remaining seven blocks.
17. Shift+click the seven blocks to select them, and in the Properties pane, specify properties for the seven blocks:
    - Double-click Padding, type 25 in the left box, click mm as the unit, and click OK.
    - Click Horizontal Alignment and click Left.

When you run the report, each page contains 10 mailing labels in two columns.
Chapter 3: Formatting a Report

Format your report to make it more readable and to reflect company standards. When you format a report in Report Studio, the formatting is stored in a layout. You can also format a report based on conditions (p. 155).

When formatting a report, you can
- add a header or footer
- add borders
- add text
- specify the font
- add color
- insert an image
- add a bookmark
- insert other objects
- align an object
- use tables to control where objects appear
- apply padding
- set margins
- reuse a layout object
- add a page
- reorder columns
- rename a column
- swap columns and rows
- set object properties
- create and modify classes

Recommendation - Laying Out a Report

When creating a report, a good layout is essential to ensure that the information in the report is presented in a clear and effective manner.

The challenge in laying out a report is in performing a mental translation of a desired layout to the layout objects available in Report Studio. Use the following steps to help you perform this translation:

- Define the page structure.
  Determine what goes into the page header, body, and footer. The page header contains information that appears at the top of each page. The page body contains information that starts on the first instance of the page. If there is too much data to fit on a single page, it continues across all instances of the page. The page footer is similar to the page header, except the information appears at the bottom of each page.

- Identify horizontal bands of information.
  Look for natural bands of information running across the page. Each of these bands typically translates into a block (p. 89).

- Identify vertical bands of information.
  In each horizontal band of information, look for bands that run up and down the page. Each of these bands typically translates into table cells (p. 91).
Decide which data frames to use to lay out the data. Choose a list, crosstab, chart, repeater, or text frame.

**Report Layout Guidelines**

To work efficiently in Report Studio, follow these guidelines when formatting reports:

- Set properties at the highest level item possible.
  
  By setting properties at the highest level, you set them once instead of setting them for each child object. For example, if you want all text items in a report to appear in a specific font, set the font for the page.

  **Tip:** When setting properties for an object, click the select ancestor button in the Properties pane title bar to see the different levels available.

- Use padding and margins to create white space.
  
  Do not use fixed object sizing unless it is absolutely necessary. When you specify that an object has a fixed size, your layout becomes less flexible.

For more information about laying out reports using these guidelines, see "Try It Yourself - Create an Invoice" (p. 191).

**The Page Structure View**

When you add objects to a report, you usually work in the layout. From the **View** menu, click **Page Structure** to view the report in a different way. Use the page structure view

- to view the entire contents of a report page in a tree structure
  
  Using a tree structure is useful for locating the objects in a page and troubleshooting problems with nested objects.

- to quickly move objects from one area of a page to another
  
  If you have a complex layout, it may be difficult to select, cut, and paste objects in the layout view. Objects are easier to locate in the page structure view.

- to modify object properties
  
  You can modify object properties in the layout or in the page structure view.

  **Tip:** To switch back to the report layout, from the **View** menu, click **Page Design**.

**Add a Header or Footer**

Add a header or footer to make a report easier to read. Headers and footers are containers in which you can add objects like text, images, and report expressions such as the current date and page numbers. You can add headers and footers to pages and lists.
Pages
Add a page header or footer when you want information to appear on every page in the report, such as a title or page numbers.

Lists
You can add the following headers and footers to lists to organize data into logical sections or to identify every change in value of a column.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>List page header</td>
<td>Adds a header that appears at the top of the list on every page in which list data appears.</td>
</tr>
<tr>
<td>Overall header</td>
<td>Adds a header that appears once at the top of the list.</td>
</tr>
<tr>
<td>Group or section header</td>
<td>Adds a header that appears for each group of a grouped column (p. 43) or each section (p. 109).</td>
</tr>
<tr>
<td>Group or section footer</td>
<td>Adds a footer that appears for each group of a grouped column (p. 43) or each section (p. 109).</td>
</tr>
<tr>
<td>Overall footer</td>
<td>Adds a footer that appears once at the bottom of the list.</td>
</tr>
<tr>
<td>List page footer</td>
<td>Adds a footer that appears at the bottom of the list on every page in which list data appears.</td>
</tr>
</tbody>
</table>

In addition, you can modify list headers and footers. You can
- split a header or footer into multiple cells that span the list (Structure menu, Split List Row Cell)
- merge multiple cells (Structure menu, Merge List Row Cells) in a header or footer
- add rows (Structure menu, Insert List Row Cells Above and Insert List Row Cells Below) to a header or footer

You can also add section headers and footers (p. 109), and you can add footers by adding a summary (p. 110).

Steps
1. Open the report that you want.
2. To add a page header or footer, from the Structure menu, click Page Header & Footer, select the appropriate check boxes, and click OK.
3. To add a list header or footer, from the Structure menu, click List Headers & Footers, select the appropriate check boxes, and click OK.
4. If you want to add objects to a header or footer, drag the object that you want from the Insertable Objects pane to the appropriate location.

   To add objects to a list header or footer, you must first unlock the report. From the Structure menu, click Lock Page Objects.

   Tip: If you want to add data items to the page header or footer, you must associate a query to the page (p. 94).

Add Borders
You can add borders to objects in a report such as a column, a header, a footer, or to the whole report to improve appearance.

Steps
1. Open the report that you want.
Chapter 3: Formatting a Report

2. Click the object to which you want to add a border.
   Tip: To quickly select the parent of an object, click the object, and then click the select ancestor button in the title bar of the Properties pane.

3. In the Properties pane, double-click the Border property.
4. Select the values you want in the Color, Style, and Width boxes.
5. Apply the selected values to the top, bottom, left side, right side, or all sides of the object by clicking the appropriate button in the Preview section.
   Tip: To clear the border applied, click the clear button.
6. Click OK.

Add Text

You can add text to a report. You can insert text in other objects, such as a block or table cell, or directly in the report page.

You can also add multilingual text to a report (p. 157).

Steps
1. Open the report that you want.
2. In the Insertable Objects pane, click the toolbox tab.
3. Drag the Text Item object to the report.
   The Text dialog box appears.
4. Type the text that you want.
   Tip: You can also paste text from another part of the report.
5. Click OK.
   If you click OK without typing any text, Report Studio inserts the string Double click to edit text.

You can now format the text by changing the font, color, size, and so on. Select the text and make the appropriate changes in the Properties pane.

Specify the Font

Specify the font in which you want text in a report to appear.

Steps
1. Open the report that you want.
2. Click the object for which you want to specify the font.
   Tip: To specify the default font for the report, click the page.
3. Click the font button.
4. In the Family box, click the font you want to use.
   Tip: Type a list of fonts if you are not sure whether a specific font is installed on a user’s computer. For example, if you type 'Times New Roman', Arial, monospace, Report Studio checks to see if Times New Roman is installed. If it is not, Report Studio checks for Arial. If Arial is not installed, the monospace font used by the computer is used.
5. In the Size box, type the font size.
6. In the Weight box, click the weight of the font.
7. In the Style box, click the font style.
8. In the Effects box, select the formatting options you want.
9. Click Foreground Color to specify the color of the text.
10. Click OK.
If you clicked (Default) for any of the font properties, the default value for the property is used. Default values are stored in a style sheet that is used across all Cognos 8 tools. You can modify default values by modifying classes (p. 102).

Add Color

You can add background and foreground color to objects in the report.

Steps
1. Open the report that you want.
2. Select the object to which you want to add color.
   
   Tip: To quickly select the parent of an object, click the object, and then click the select ancestor button in the title bar of the Properties pane.
3. In the Properties pane, select Background Color or Foreground Color, and then click the ellipsis points (...).
4. To apply an existing color, click the Web Safe Colors tab or Named Colors tab and choose one of the available colors.
   Use a named color to select a color from a small set of colors. Use Web safe colors to select from 216 available colors.
5. To apply a custom color, click the Custom Color tab and type values in the Red, Green, and Blue boxes.
   The values must be in hexadecimal.
6. Click OK.

Insert an Image

You can insert an image in a report. You can insert images in other objects, such as a block or table cell, directly in the report page, or as the background image of another object.

Steps
1. Open the report that you want.
2. In the Insertable Objects pane, click the toolbox tab.
3. Drag the Image object to the report and then select it.
4. In the Properties pane, double-click the URL property.
5. In the Image URL dialog box, type the URL of the image you want to insert or click the Browse button to go to the location containing the image.
   To browse images on a Web server, you must enable Web-based Distributed Authoring and Versioning (WebDAV) on your Web server. For more information, see "Troubleshooting" (p. 201).
6. Click OK.

Insert a Background Image

You can insert a background image for objects in a report. For example, use a background image to add a watermark to a page.

Steps
1. Select the object for which you want to add a background image.
2. In the Properties pane, double-click the Background Image property.
3. In the Image URL box, type the URL of the image you want to insert or click the Browse button to go to the location containing the image.
   The image appears in the Preview box.
4. In the Position box, choose how you want to align the image in the object.
5. In the Tiling box, click the tiling option you want.
6. If the object has scroll bars and you do not want the background image to move while scrolling, select the Keep background from scrolling check box.
7. Click OK.

Add a Bookmark

Add a bookmark so that users can quickly move from one part of a report to another. For example, a list report contains many rows of data. You use bookmarks so that users can move to specific rows.

You can also drill through to another report (p. 164).

Bookmarks work for reports produced in HTML format or PDF. In HTML format, they work best when viewing saved report outputs, as the entire report appears in a single HTML page. When reports are run interactively, more than one HTML page may be generated, and a bookmark works only if the target exists in the page currently being viewed.

Tip: You can reduce the number of HTML pages generated when a report is run interactively by specifying a value for the Rows Per Page property for a data container in the report.

Steps
1. Open the report that you want.
2. In the Insertable Objects pane, click the toolbox tab.
3. Drag Bookmark to the location you want, which can be anywhere in the report.
4. Click the bookmark, and in the Properties pane, click the Source Type property and then click a source type.

<table>
<thead>
<tr>
<th>Source type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Creates a static bookmark using a text value.</td>
</tr>
<tr>
<td></td>
<td>For example, a list has sections, and you want users to jump from each section to the top of the report.</td>
</tr>
<tr>
<td>Report Expression</td>
<td>Creates a dynamic bookmark whose values are derived from an expression that you define.</td>
</tr>
<tr>
<td>Data Item Value</td>
<td>Creates a dynamic bookmark that has data as possible values. This is useful for creating a context-based bookmark.</td>
</tr>
<tr>
<td></td>
<td>For example a list has sections, and you want users to jump from the top of the report to a specific section.</td>
</tr>
<tr>
<td></td>
<td>Note: This source type appears only if the bookmark is inserted next to a data item.</td>
</tr>
<tr>
<td>Data Item Label</td>
<td>Creates a bookmark that has the label of a data item as its value. Use this source type to jump to the first occurrence of a data item label.</td>
</tr>
<tr>
<td></td>
<td>For example, a list is divided into sections using Product line. You want users to jump to the first product line section that appears in the list rather than to a specific section, such as Camping Equipment.</td>
</tr>
<tr>
<td></td>
<td>Note: This source type appears only if the bookmark is inserted next to a data item.</td>
</tr>
<tr>
<td>Member Caption</td>
<td>In a crosstab, creates a dynamic bookmark that uses member captions as possible values.</td>
</tr>
</tbody>
</table>
5. Click the property that appears under the source type you chose and specify the bookmark value.
   For example, if the source type is Data Item Value, click the Data Item Value property and click the data item you want to use.

6. Right-click the object that you want to use to jump to the bookmark and click Drill Throughs.
   For example, right-click a data item, image, chart, or text item.
   Tip: The object can exist in a different report, so you can jump from one report to another.

7. Click the new drill through button.

8. Click the Bookmark tab.

9. Click Source type and click one of the source types described in step 4.
   Click the source type you want to use to produce the value needed to jump to the bookmark.
   For example, click Data Item Values if you want the value to come from a data item, such as Product line.

10. If you clicked one of the following source types, specify the value to use to jump to the bookmark.
    • For Text, click the ellipsis points (...) next to Text, and type a text value.
    • For Data Item Value or Data Item Label, click the Data item list, and choose a data item.
    • For Report Expression, click the ellipsis points (...) next to Report expression, and define the expression.

11. Click OK.

Example - Add a Table of Contents to a Report

You are a report author at the Great Outdoors Company, which sells sporting equipment. You are requested to create a report that shows all products sold by the company. To make the report easier to read, you divide the report into sections for each product line. You add bookmarks so that users can jump to each product line and back to the top of the report.

Steps
1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   • Product line
   • Product type
   • Product name
   • Description
   • Production cost
   Tip: You can find these items in the Products folder.

6. Click the Product line column, and then click the create section button.
7. From the Structure menu, click Lock Page Objects.
8. In the Insertable Objects pane, on the toolbox tab, drag Bookmark to the left of Product line.
9. Click the bookmark, and in the Properties pane, click the Source Type property and click Data Item Value.
10. In the **Properties** pane, click the **Data Item Value** property and click **Product line**.

11. In the **Insertable Objects** pane, on the toolbox tab, drag **List** to the report header.

12. Click the report header.

13. Click the container alignment button, and click align top left.

14. In the **Insertable Objects** pane, on the source tab, drag **Product line** to the new list.

15. Right-click **Product line** and click **Drill Throughs**.

16. Click the new drill through button.

17. Click the **Bookmark** tab.

18. Click **Source type** and then click **Data Item Value**.

19. Click **Data Item** and then click **Product line**.

20. Click **OK**.

21. In the **Insertable Objects** pane, on the toolbox tab, drag **Text Item** to the left of the **Product line** bookmark.

22. In the **Text** dialog box, type **Top** and click **OK**.

23. Right-click the **Top** text item and click **Drill Throughs**.

24. Click the new drill through button.

25. Click the **Bookmark** tab.

26. Click **Source Type** and then click **Text**.

27. Click the ellipsis points (...) next to the **Text** box.

28. Type **Top** and click **OK**.

29. In the **Insertable Objects** pane, on the toolbox tab, drag **Bookmark** to the report header.

30. Click the bookmark.

31. In the **Properties** pane, click the **Source Type** property and click **Text**.

32. In the **Properties** pane, double-click the **Label** property and type **Top**

33. Click **OK**.

34. Save the report.

35. In Cognos Connection, click the run with options button for the report.

36. Under Delivery, click **Save the report**.

37. Click **Run** and then click **OK**.

   **Tip:** The report may take a few minutes to run.

38. Under Actions, click View the output versions for this report button for the report.

39. Under Formats, click **HTML** to view the report output.

   The report opens in Cognos Viewer.

In the report header, all product lines appear in a list as links. Clicking a product line brings you to the corresponding product line section in the second list. You can return to the top of the report by clicking the **Top** link next to the section heading.
Insert Other Objects

In addition to text and images, the toolbox tab in the Insertable Objects pane contains other objects that you can add to the report layout.

<table>
<thead>
<tr>
<th><strong>Object</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Query Calculation</td>
<td>Adds a calculated column (p. 114).</td>
</tr>
<tr>
<td>Layout Calculation</td>
<td>Adds a calculation in the layout that contains run-time information, such as current date, current time, and user name.</td>
</tr>
<tr>
<td>Block</td>
<td>Adds an empty block, a container in which you can insert other objects. This is useful for controlling where objects appear. <strong>Tip:</strong> You can use blocks to add space between objects. However, empty blocks are not rendered. You must insert an object or specify the height and width.</td>
</tr>
<tr>
<td>Table</td>
<td>Adds a table, a container in which you can insert other objects. This is useful for controlling where objects appear.</td>
</tr>
<tr>
<td>Hyperlink</td>
<td>Adds a hyperlink so that users can jump to another place, such as a Web site.</td>
</tr>
<tr>
<td>Row Number</td>
<td>Numbers each row of data returned when the report is run. <strong>Note:</strong> You can add row numbers only to lists and repeaters.</td>
</tr>
<tr>
<td>HTML Item</td>
<td>Adds a container in which you can insert HTML code. HTML items can be anything that your browser will execute, including links, images, multimedia, tooltips (p. 209), or JavaScript. <strong>Note:</strong> You cannot include &lt;form&gt; tags in HTML items. In addition, HTML items appear only when you run the report in HTML format.</td>
</tr>
</tbody>
</table>
Chapter 3: Formatting a Report

<table>
<thead>
<tr>
<th>Object</th>
<th>Description</th>
</tr>
</thead>
</table>
| Rich Text Item          | Inserts an object that is used to render HTML in the layout. This object is similar to the HTML Item, except that rich text items also render in PDF output. Using rich text items is useful when you want to add annotations defined in a data source to a report.  
  **Note:** Rich text items support only a restricted set of well-formed XHTML. |
| Layout Component        | Adds a reference to another object. Useful when you want to reuse an object.                                                                    |
| Reference               |                                                                                                                                             |
| Conditional Blocks      | Adds an empty block that you can use for conditional formatting (p. 155).                                                                       |
| Field Set               | Adds an empty block that has a caption. This is similar to the Block object, but with a caption.                                              |
| Hyperlink Button        | Adds a hyperlink in the form of a button.                                                                                                   |
| Metric Studio Diagram   | Adds a Metric Studio history chart as an image.                                                                                            |
|                         | For information about adding a Metric Studio diagram to a report, see the Metric Studio User Guide.                                       |
| As of Time Expression   | Adds the As of Time expression (p. 117).                                                                                                  |
| Crosstab Space          | Inserts an empty cell on a crosstab edge. Allows for the insertion of non-data cells on an edge.                                           |
| Crosstab Space (with Text) | Inserts a cell with a text item on a crosstab edge. Allows for the insertion of non-data cells on an edge.                              |

The toolbox tab contains other objects when you work in Query Explorer (p. 127) and in Condition Explorer (p. 153). You can also add your own objects to the toolbox, such as a company logo that you use often. For more information, see the *Administration and Security Guide*.

Before you can add a hyperlink, HTML item, or hyperlink button, you must have the **HTML Items in Report** capability. For more information, see the *Administration and Security Guide*.

**Steps**

- To add an object, drag or double-click it from the toolbox tab.

For information about each report type, see "Types of Reports" (p. 43). For information about each prompt control and prompt buttons, see "Adding Prompts" (p. 117).

**Elements Supported in Rich Text Items**

Rich text items support all XHTML character entities, such as &nbsp (non-breaking space), and the following elements:

- div
- span
- ul
- ol
- li

Each element only supports the style attribute, which must contain a valid CSS style. In addition, ul and ol elements support list-style attributes. Specifically, the ol element supports decimal, and the ul element supports circle, disc, and square, as well as list-style-image.
For example, the following code produces an unordered list entitled List: with three items. Each list item is in a different color, and the list-style attribute used is circle.

```html
<div style="font-size:14pt; text-decoration:underline">List:</div>
<ul style="list-style-type:circle">
  <li style="color:green">Item <span style="font-weight:bold">A</span></li>
  <li style="color:red">Item B</li>
  <li style="color:blue">Item C</li>
</ul>
```

**Example - Add a Multimedia File to a Report**

You are a report author at the Great Outdoors Company, which sells sporting equipment. You want to insert a Windows Media Audio/Video file named GO.wmv in a template that serves as a cover page for all reports.

You must have Windows Media Player installed on your computer.

**Steps**

1. In the Cognos Connection **Welcome** page, click the **Public Folders** link.
2. Click the **GO Sales and Retailers** link, and then click the **Report Studio** link in the top right corner of the page.
3. In the **Welcome** dialog box, click **Open an existing report**.
4. In the **Open** dialog box, click the **GO Template Samples** folder and then double-click **GO Cover Page**.
   The GO Cover Page report opens.
5. In the **Insertable Objects** pane, on the toolbox tab, drag the **HTML Item** object to the report.
6. In the report, select the **HTML Item** you just added.
7. In the **Properties** pane, double-click the **HTML** property.
8. In the **HTML** dialog box, type the following:

   ```html
   <OBJECT classid="CLSID:6BF52A52-394A-11D3-B153-00C04F79FAA6">
     <PARAM NAME="URL" VALUE="/c8/webcontent/samples/images/GO.wmv"/>
   </OBJECT>
   ```
   
9. Click **OK**.

   When you run the report, the multimedia file plays in Windows Media Player.

**Align an Object**

You can specify an alignment for objects in a report to determine where it appears. **Tables** can also be used to determine where objects appear in a report.

**Steps**

1. Open the report that you want.
2. Select the object that you want to align.
   **Tip**: To quickly select the parent of an object, click the object, and then click the select ancestor button in the title bar of the **Properties** pane.
3. Click the container alignment button, and then click one of the available alignment options.

**Use Tables to Control Where Objects Appear**

In addition to the **container alignment button**, you can use tables in your report to control where objects appear. Tables can be inserted anywhere in a report, such as a header, a footer, or the page body. After you create a table, insert the objects you want in the cells.

You can also apply a predefined **table style** to tables.
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**Steps**

1. Open the report that you want.
2. In the **Insertable Objects** pane, click the toolbox tab.
3. Drag **Table** to the report.
   
   The **Insert Table** dialog box appears.
4. In the **Number of columns** and **Number of rows** boxes, type the number of columns and rows you want the table to have.
5. To have the table span the width of the report page, select the **Maximize width** check box.
6. To add borders to the table, select the **Show borders** check box.
7. Click **OK**.

**Apply a Table Style**

Apply a table style to quickly format tables. You can also apply a table style to lists, crosstabs, and repeater tables.

**Steps**

1. Open the report that you want.
2. Click the table, list, or crosstab to which you want to apply a table style.
3. From the **Table** menu, click **Apply Table Style**.
4. In the **Table styles** box, click the table style that you want.
   
   Tip: Some styles are unique to tables, lists, or crosstabs.
5. If you are applying a table style to a table or list, in the **Apply special styles to** section, select or clear the various column and row check boxes based on how you want to treat the first and last columns and rows.
   
   Some check boxes may not be available for particular table styles, or to particular columns or rows.
6. If you are applying a table style to a list or crosstab, select the **Set this style as the default for this report** check box to set the style as the default for all lists and crosstabs.
   
   For a list, you may need to clear the **First column** and **Last column** check boxes in the **Apply special styles to** section before you can select this check box. In addition, some tables styles cannot be set as the default.
7. Click **OK**.

**Apply Padding**

Apply padding to an object to add white space between the object and its margin or, if there is a border, between the object and its border.

**Steps**

1. Open the report that you want.
2. Select the object to which you want to apply padding.
3. In the **Properties** pane, double-click the **Padding** property.
4. Specify top, bottom, left, and right padding by typing values in the corresponding boxes and choosing the unit of measure you want.
5. Click **OK**.

**Set Margins**

You can set margins for objects in a report.
Steps
1. Open the report that you want.
2. Select the object for which you want to set margins.
3. In the Properties pane, double-click the Margin property.
4. Specify the top, bottom, left, and right margins by typing values in the corresponding boxes and choosing the unit of measure you want.
5. Click OK.

Reuse a Layout Object

You can save time by reusing layout objects that you add to a report instead of re-creating them. For example, you have a multiple-page report and you want to show the company logo in the page header of each page. Insert the logo once and reuse it on all other pages.

Steps
1. Open the report that you want.
   Tip: You can also create a new report or template and add all the objects you want to share. All your shared objects then reside in a single location, like a library.
2. Click the object that you want to reuse.
   Tip: To quickly select the parent of an object, click the object, and then click the select ancestor button in the title bar of the Properties pane.
3. In the Properties pane, in the Name property, type a value beginning with a letter to uniquely identify the object and press the Enter key.
4. If you want to reuse the object in another report, open that report.
5. In the Insertable Objects pane, on the toolbox tab, drag the Layout Component Reference object to the location where you want to reuse the object.
6. In the Component Location box, do the following:
   • Click This report to reference an object in the current report.
   • Click Another report to reference an object in another report, click the ellipsis points (...), and open the report you want.
7. In the Available components to reference box, click the object you want and click OK.
8. Click the referenced object.
9. In the Properties pane, click the Embed property and specify how to store the referenced object in the report:
   • Click Copy to store a copy of the object.
     The copy is not automatically updated if the source object is modified.
   • Click Reference to store a reference, or pointer, of the object.
     The reference of the object is automatically updated if the source object is modified. For example, if you open or run the report, you see the modified object.

   A copy or reference of the object appears where you placed the Layout Component Reference object. If a source object is changed, you can update reused objects.

Change a Reused Object

If you reuse an object that contains other objects, you can change the child objects to something different. For example, you have a block object containing a text item in the page header, and you decide to reuse the block in the page footer. However, you want the text item in the page footer block to show different text from that in the page header.

Steps
1. Open the report that you want.
2. In the parent object that you want to reuse, click the child object you want to change.
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3. In the **Properties** pane, in the **Name** property, type a value beginning with a letter to uniquely identify the object.

4. Select the copy of the parent object you created with the **Layout Component Reference** object.

5. In the **Properties** pane, double-click the **Component Overrides** property.

6. In the **Component Overrides** dialog box, select the child object you want to change and click **OK**.

   The child object in the copy of the parent object is replaced by the following text:

   **Drag & drop object to override component child.**

7. Drag the object that you want to replace the child object.

   You can replace the child object with any other object, not just an object of the same type. For example, if the child object is a text item, you can replace it with an image.

### Update Reused Objects

If a report contains objects referenced in another report, you can quickly update the referenced objects if the source objects have changed. Shared objects are stored in the layout component cache.

**Steps**

1. Open the report that you want to update.

2. From the **Tools** menu, click **Layout Component Cache**.

   The **Layout Component Cache** dialog box appears, showing all reports that contain referenced objects and the source reports where the objects exist.

3. To view which components are reused, click a source report.

   The components that are reused appear in the **Components used** pane.

4. Click the **Reload Components** button to refresh all referenced objects.

   Although referenced objects are automatically refreshed when you open or run a report, clicking this button updates components that were changed while the report is open.

5. Click the **Update All Component Copies** button to refresh all copied objects.

6. Click **Close**.

### Add a Page

Reports may contain pages with a variety of content. Pages may be added to create a multiple-page report. You may want to do this for a variety of reasons. For example, you are creating a sales report and you want to include general information about the company. You decide to create an introduction page to show this information. When you run the report, page 1 of the report is the introduction page. The following pages contain data.

You can also **create page sets** to control the rendering of pages in a report.

**Steps**

1. Open the report that you want.

2. Pause the pointer over the page explorer button and click **Report Pages**.

   **Tip:** Click **Prompt Pages** to add a prompt page (p. 117).

3. In the **Insertable Objects** pane, on the toolbox tab, drag **Page** to the work area.

4. If you want to change the order of pages, click a page and drag it above or below the other existing pages.

5. If you want to associate a query to the page, in the **Properties** pane, click the **Query** property and click the query you want.

   Associate the page to a query to add data-related objects directly to the page header, body, or footer, such as data items and filters.

6. Double-click the page to open it in page design view (p. 82).

7. Add the objects you want to the page.
Create Page Sets

Create page sets to associate pages with a query structure to force page breaks. For example, a query contains the data item Product line, which is grouped. Creating a page set that is associated with this query adds page breaks for each product line.

Steps
1. Pause the pointer over the page explorer button and click Report Pages.
2. Create the pages you want to appear in the report.
3. In the Insertable Objects pane, drag the Page Set object to the Report Pages pane.
4. In the Properties pane, click the Query property and click the query you want to associate to the page set.
5. Organize the pages in the report by dragging report pages to the page set you want.
6. Insert the page containing details in the Detail Pages folder.
   Detail pages are the pages that repeat based on the items you group by in the following step. Tip: You can insert multiple detail pages into the same page set, and link them using a master-detail relationship (p. 170).
7. Define the grouping structure for the page set:
   • Click the page set.
   • In the Properties pane, double-click the Grouping & Sorting property.
   • In the Data Items pane, drag the data item you want to group by to the Groups folder in the Groups pane.
   • If you want to sort the data (p. 108) within each group, in the Data Items pane, drag the data item you want to sort by to the Sort list folder, and then click the sort order button to specify the sort order.
   • Click OK.
8. Repeat steps 2 to 6 to create other page sets.
    Tip: You can nest page sets, and join them by defining a master-detail relationship. Create nested page sets to have pages occur within other pages. For example, you want pages containing product type information occur within pages containing product line information.

Note: Grouping an item for a page set is not the same as grouping a column in the layout (p. 43). Grouping a column in the layout visually shows groups in a report. Grouping an item for a page set groups the item in the query. If you want to use an item that is already grouped in the layout, you must still perform step 7.

Join Nested Page Sets

If you have nested page sets in your report, define a master-detail relationship between them to see data in the nested page set that is related to the data in the parent page set. For example, you have a page set that shows pages of product line information. The page set contains a nested page set that shows pages of product type information. For each product line page, you want to see the related product type pages, as shown below:

Example:

Product line_1
• Product type_1
• Product type_2
• Product type_3
Product line_2
• Product type_4
• Product type_5
• Product type_6

Steps
1. Open the report that you want.
2. Pause the pointer over the page explorer button and click Report Pages.
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3. In the Report Pages pane, click the nested page set.
4. In the Properties pane, double-click the Master Detail Relationships property.
5. Click the New Link button.
6. In the Master Query box, click the data item that provides the primary information.
7. Link the master data item to the details by doing one of the following:
   - To link to another data item in the detail query, in the Detail Query box, click the data item that provides the detailed information.
   - To link to a parameter, in the Parameters box, click the parameter that provides the detailed information.
8. Repeat steps 5 to 7 if you want to create other links.
   Tip: To delete a link, click it and press the Delete key.
9. Click OK.

For more information about master-detail relationships, see "Create a Master-Detail Relationship" (p. 170).

Example - Preparing a Product List Report

You are a report author at the Great Outdoors Company, which sells sporting equipment. You are requested to create a multiple-page report showing all products sold by the company. You are asked to create title and end pages, and to have each product line appear on a new page, preceded by a header page and followed by a footer page.

Steps
1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   - Product line
   - Product type
   - Product name
   - Description
   - Production cost
   Tip: You can find these data items in the Products folder.
6. Group the Product line and Product type columns.
7. Pause the pointer over the page explorer button and click Report Pages.
8. In the Insertable Objects pane, drag Page Set to the work area and associate it to the query Query1.
9. In the Insertable Objects pane, drag Page to the work area four times.
10. For each page, click the page, and in the Properties pane, double-click the Name property and name it as follows:
    - Title page
    - End page
    - Product Line Header
    - Product Line Footer
11. For each page just created, add the objects you want.
    For example, add a text item to each page to uniquely identify it.
12. Rename the Page1 page, which contains the list, to List.
13. Click the page set, and, in the Properties pane, double-click the Grouping & Sorting property.
14. In the **Data Items** box, drag **Product line** to the **Groups** folder in the **Groups** box and click **OK**.

15. Organize the report pages into the following hierarchy by dragging them to the appropriate location.

When you run the report, the following pages appear:
- Title page
- Product line header page
- A page for Product line_1
- Product line footer page
- Product line header
- A page for Product line_2
- Product line footer
- ...
- End page

### Reorder Columns

Change the order of columns in a report to rearrange information.

**Steps**
1. Click the column you want to reorder in the report.
   - You can click the column heading or a column.
2. Drag the column to a new location.
   - A black bar indicates where you can drop the column.

### Rename a Column

Change the column title to provide a more meaningful name. By default, when you run a report, the column title is taken from one of the following:
- if defined, the **Label** property of the data item
- if defined, the label of the data item in the model
- the **Name** property of the data item

Consequently, the column title you see in the layout may not be the column title you see when you run the report. For example, if you modify the **Name** property of the data item, the column title in the layout will change to the new name. However, when you run the report, the column title that appears will be, if defined, the data item label in the report or the data item label in the model. If neither of these are defined, only then will the modified name be used as the column title.

**Steps**
1. Click the column heading you want to change.
2. In the **Properties** pane, click the **Source Type** property and click the source type you want to use for the column title:
• If you want to use a static text item, click Text, and then type the name you want in the Text property that appears.

• If you want to use a data item value, click Data Item Value, and then click the data item you want to use in the Data Item Value property that appears.

Using a data item value is useful when you have a master-detail relationship. For example, you create a list with sections using a master-detail relationship (p. 109), and you want the section name to appear in the column title of one of the columns. Insert the data item used as section headings into the column title, and specify the source type as Data Item Value. When you run the report, for each section, the column title will contain the section heading combined with the data item label or name.

• If you want to use a label that is different from the label in the model, click Data Item Label, click the data item you want to use in the Data Item Label property that appears, and type the name you want in the Label property.

Tip: The Label property is under the Data Item group.

• If you want to use a report expression, click Report Expression, double-click the Report Expression property that appears, type the expression you want, and click OK.

3. Press Enter.

Swap Columns and Rows

Swap columns and rows to look at information from a different perspective. This may help you discover high and low points in the data that you hadn't previously noted.

You can only swap columns and rows in a crosstab or chart.

Steps

1. Open the report that you want.

2. From the Structure menu, click Swap Rows and Columns.

In the report, the rows become the columns and the columns become the rows.

Setting Object Properties

For each object you insert in a report, you can define its properties by specifying values in the Properties pane. Some properties, such as borders, color, and padding, are discussed elsewhere. Other properties include

• pagination
• spacing and breaking
• text flow and justification
• size and overflow
• floating
• table properties

Some properties apply only to some objects. For more information about objects and properties, see "Report Studio Object and Property Reference" (p. 333).

Object properties are Cascading Style Sheets (CSS) attributes. For information about a particular property, see the CSS documentation on the World Wide Web Consortium (W3C) Web site (http://www.w3.org).
Control Page Breaks and Page Numbering

You can control page breaks and page numbering in a list, crosstab, or report page by choosing any of these options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep with header</td>
<td>Keeps all headers on the same page with the number of detail rows specified.</td>
</tr>
<tr>
<td>Keep with footer</td>
<td>Keeps all footers on the same page with the number of detail rows specified.</td>
</tr>
<tr>
<td>Reset page count</td>
<td>Resets the page count after a page break to the value specified.</td>
</tr>
<tr>
<td>Reset page number</td>
<td>Resets the page number after a page break to the value specified.</td>
</tr>
<tr>
<td>Repeat every page</td>
<td>When an object contains more rows than can be shown on a page, the object is repeated on the next page.</td>
</tr>
<tr>
<td>Allow text to break across pages</td>
<td>Allows text in a row to break across pages.</td>
</tr>
</tbody>
</table>

Steps
1. Open the report that you want.
2. Click the object you want.
3. In the Properties pane, double-click the Pagination property.
4. Specify how you want pages to break and be numbered by specifying the options that you want.

Specify Text Properties

You can specify text properties by choosing any of these options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Height</td>
<td>Sets the distance between lines of text in an object.</td>
</tr>
<tr>
<td>Letter Spacing</td>
<td>Sets the amount of additional space between letters in an object.</td>
</tr>
<tr>
<td>Text Indent</td>
<td>Sets the indentation of the first line of text in an object.</td>
</tr>
<tr>
<td>Word Break</td>
<td>Sets line-breaking behavior within words.</td>
</tr>
<tr>
<td>Break Words when Necessary</td>
<td>Sets whether to break words when the content exceeds the boundaries of an object.</td>
</tr>
</tbody>
</table>

Steps
1. Open the report that you want.
2. Click the object you want.
3. In the Properties pane, double-click the Spacing & Breaking property.
4. Specify the text properties that you want.
Chapter 3: Formatting a Report

Specify Text Flow

You can specify text flow properties by choosing any of these options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction</td>
<td>Sets the reading order of an object, such as right to left.</td>
</tr>
<tr>
<td>Writing mode</td>
<td>Sets the direction and flow of content in an object.</td>
</tr>
<tr>
<td>Bi-directional</td>
<td>Sets the level of embedding in an object.</td>
</tr>
<tr>
<td>Type</td>
<td>Sets the type of alignment used to justify text in an object.</td>
</tr>
<tr>
<td>Kashida space</td>
<td>Sets the ratio of kashida expansion to white space expansion when justifying lines of text in the object. This property is used in Arabic writing systems.</td>
</tr>
</tbody>
</table>

Steps
1. Open the report that you want.
2. Click the object you want.
3. In the Properties pane, double-click the Text Flow & Justification property.
4. Choose how you want text to flow by specifying the options that you want.

Specify the Height and Width

You can specify the height and width of objects. In addition, if the object is a block, you can specify how to handle content overflow. Specify the height and width by choosing any of these options.

Note: Do not use percentages to resize charts and maps that contain interactive elements that are activated when you pause the pointer over them, such as tooltips or drill-through links, because the browser is unable to realign the hard-coded hot spots after an image is resized.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Sets the height of the object.</td>
</tr>
<tr>
<td>Width</td>
<td>Sets the width of the object.</td>
</tr>
<tr>
<td>Content is not clipped</td>
<td>If the contents of the block exceed the height or width of the block, the block automatically resizes to fit the contents.</td>
</tr>
<tr>
<td>Content is clipped</td>
<td>If the contents of the block exceed the height or width of the block, the content is clipped.</td>
</tr>
<tr>
<td>Note: The clipped content still exists. It is just not visible in the block.</td>
<td></td>
</tr>
<tr>
<td>Use Scrollbars only when necessary</td>
<td>If the contents of the block exceed the height or width of the block, scrollbars are added to the block.</td>
</tr>
<tr>
<td>Always use scrollbars</td>
<td>Scrollbars are added to the block.</td>
</tr>
</tbody>
</table>

Steps
1. Open the report that you want.
2. Click the object you want.
3. In the Properties pane, double-click the Size & Overflow property.
4. Specify the options that you want.

Control How Objects Flow Around Other Objects

You can control how objects flow around other objects by choosing any of the following options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Float</td>
<td>Sets how other objects flow around the object.</td>
</tr>
<tr>
<td>Allow floating objects on both sides</td>
<td>Allows other objects to flow on both sides. The Float property must be set.</td>
</tr>
<tr>
<td>Move below any floating object on the left side</td>
<td>If there are other objects to the left of the object, the object moves below those objects. The Float property must be set.</td>
</tr>
<tr>
<td>Move below any floating object on the right side</td>
<td>If there are other objects to the right of the object, the object moves under those objects. The Float property must be set.</td>
</tr>
<tr>
<td>Move below any floating object</td>
<td>Moves the object under any other object in which the Float property was set.</td>
</tr>
</tbody>
</table>

Steps
1. Open the report that you want.
2. Click the object you want.
3. In the Properties pane, double-click the Floating property.
4. Specify how you want other objects to flow around the object by specifying the options that you want.

Specify Borders and Cell Size in Tables

You can specify the borders and cell size in lists, crosstabs, and tables by choosing any of these options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collapse borders</td>
<td>Collapses adjacent cell borders into a single border.</td>
</tr>
<tr>
<td>Cell spacing</td>
<td>If borders are not collapsed, sets the amount of space between cell borders.</td>
</tr>
<tr>
<td>Show empty cell borders</td>
<td>If borders are not collapsed, shows borders of cells that are empty.</td>
</tr>
<tr>
<td>Fixed size</td>
<td>Makes all cells the same fixed, size.</td>
</tr>
</tbody>
</table>

Steps
1. Open the report that you want.
2. Click the object you want.
3. In the Properties pane, double-click the Table Properties property.
4. Specify the borders and cell size by specifying the options that you want.
Create and Modify Classes

Create your own classes or modify existing classes in a report to format objects across a report according to your particular needs. In Report Studio, objects in reports are assigned a Cascading Style Sheet (CSS) class that provides a default style for the object. For example, when you create a new report, the report title has the class property `Report title text` assigned to it. In addition, objects inherit the classes set on its parent objects.

Classes you create or modify can be applied only to the current report. If you want to create or modify classes for all reports, you must modify the default layout style sheet. In addition, some classes can be used to format Query Studio reports.

Steps

1. Open the report that you want.
2. If you want to work with classes that were used in Cognos ReportNet\(^i\), do the following:
   - From the File menu, click Report Properties.
   - Select the Use 1.x report styles check box.
   Use 1.x report styles when you are working with reports created in ReportNet and you want to preserve their original appearance.
3. Pause the pointer over the page explorer button and click Classes.
4. If you want to create a new class, in the Insertable Objects pane, drag Class to the Local Classes pane.
5. If you want to modify an existing class, in the Global Class Extensions pane, click the class you want.
   Modify a global class to apply a change to all objects that use that class. For example, if you modified the style `List column title cell`, all column titles in lists will reflect your modifications.
   Tip: Ctrl+click global classes if you want to make the same change to more than one global class.
6. In the Properties pane, modify the properties to specify your desired formatting.
   Tip: Look at the Preview pane to preview your changes for different report objects, such as blocks, table cells, and text items.
   A diamond symbol appears on the global class icon to indicate that the class was modified.
7. Apply the class to the objects you want:
   - Pause the pointer over the page explorer button, and click a report page.
   - Click an object to which you want to apply the style.
   - In the Properties pane, double-click the Class property.
   - To not apply any class, click the None radio button.
   - To apply a local class, click the Local Class radio button and then click the class you want.
   - To apply a global class, click the Global Class radio button and then click the class you want.
   - Click OK.

Modify Classes to Format Query Studio Reports

Some global classes are specific to Query Studio or can be applied to Query Studio reports. You can modify the following classes to format Query Studio reports.

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>List column body cell</td>
<td>Style used to format list data.</td>
</tr>
<tr>
<td>List column title cell</td>
<td>Style used to format list column headings.</td>
</tr>
</tbody>
</table>
Steps
1. Create a Query Studio template (p. 38).
2. Modify the global classes that you want.
3. Save the template.

To format a Query Studio report using the modified classes, the template must be applied to the report. For more information about applying a template to a Query Studio report, see the Query Studio User Guide.

Modifying the Default Layout Style Sheet

In addition to creating or modifying classes in a report, you can create and modify classes that will apply to all reports. Default styles are stored in a style sheet named GlobalReportStyles.css. For information about modifying the style sheet, see the Administration and Security Guide.
Chapter 4: Working with Data

Make a report easier to read and easier to understand by specifying what data appears in the report and how the data looks. In Report Studio, you can
- filter data
- sort data
- create sections
- add a summary
- create a calculation
- format data
- specify the list of properties for a layout object
- show data for a specific time period
- define a prompt
- work with queries

Filter Data

Add a filter expression to focus a report and minimize processing time by excluding unwanted data. For example, you can filter data to show customers who placed purchase orders valued at over one thousand dollars during the past year. When you run the report, you see only the filtered data.

If an expression is used in multiple reports, or by different report authors, ask your modeler to create the expression as a standalone object in the model and include it in the relevant package.

For information about creating filters in the package, see the Framework Manager User Guide.

If you are working with a dimensional data source, you can also define slicers. If you are filtering non-numeric data, you must select members from the data tree instead of typing member names (p. 224).

Steps
1. Open the report that you want.
2. If you want to add a filter that was created in the package, in the Insertable Objects pane, on the source tab, drag the filter you want to the report.
   You must drag the filter to an object that is linked to a query. If there is more than one query defined in the report, drag the filter to an object linked to the query you want.
3. From the Data menu, click Filters.
   If you have more than one query defined in the report, you must first click an object linked to a query. If there is more than one query defined in the report, click an object that is linked to the query you want.
   Tip: You can also define filters in Query Explorer (p. 127).
4. In the Filters dialog box, decide what type of filter you want to create:
   • To add a filter that will apply to detail values, click the Detail Filters tab.
   • To add a filter that will apply to summary values, click the Summary Filters tab.
5. Click the add button.
6. In the Available Components box, define the filter expression:
   • If you want to include data items not shown in the report, on the source tab, double-click data items.
Chapter 4: Working with Data

- If you want to include data items that are in the report but not necessarily in the model (such as calculations), on the data items tab, double-click data items.
- If you want to include data items from a specific query (p. 127) in the report, on the queries tab, double-click data items.
- If you want to add functions, summaries, and operators to the filter expression, on the functions tab, double-click data items.

  Note: You can insert only functions that return a boolean value. For example, you cannot insert the function `topCount` because it returns a set of data. Filter expressions must resolve to a boolean in order to be valid.
- If you want to include a value that is derived from a parameter, on the parameters tab, double-click a parameter.

  Parameters are used to define prompts (p. 117), drill-through reports (p. 164), and master-detail relationships (p. 170).

  Tip: You can also type the filter expression directly in the Expression Definition box. When typing date values, the date must be in the YYYY-MM-DD format.

  For more information about creating expressions, see "Using the Expression Editor" (p. 223).

  7. Click the validate expression button and click OK.
  8. In the Usage box, specify whether the filter is required, optional, or not to be used.
  9. If you created a detail filter, in the Application box, click one of the following options:

      • To apply the filter to individual records in the data source, click Before auto aggregation.

      For example, you want to filter out individual orders of a specific product type within a product line that generated less than one thousand dollars in revenue.

      • To apply the filter to data after the query has grouped and summarized at the lowest level of detail, click After auto aggregation.

      For example, you want to filter out product types within a product line that generated less than ten thousand dollars in revenue.

      For example, you have a list that contains the data items Product line, Product type, and Revenue. The revenue values you see are aggregated to the product type level. If you create detail filter on Revenue and you choose to filter values before auto aggregation, you are filtering non-aggregated revenue values. If you choose to filter values after auto aggregation, you are filtering revenue values aggregated to the product type level.

      Tip: If you are using a dimensional data source, after aggregation is always applied, because by definition, dimensional data is aggregated.

  10. If you are filtering a summary, click the ellipsis points (...) under Scope and select the grouping level for which you want to apply the filter.

      For example, a revenue report is grouped on product line and product type. You can choose to filter total revenue for either the product line or product type level.

      If the query in which you are creating the summary filter is linked to more than one data container, the data item that you select as the grouping level must be grouped in all data containers linked to the query. Otherwise, the report will not run successfully.

      Tip: If you want to filter at the overall level, do not click a level. For example, if a report has an overall footer that shows the total revenue for all products, by not choosing a level you will apply the filter to the footer. In addition, if you are using a dimensional data source, excluding a parent level excludes its children, and excluding all children excludes the parent.

  11. Click OK.

Define a Slicer

Use slicers to create dimensional filters that reduce the data included in measure rollups. For example, a slicer is a filter that is applied to the cells but not the rows or columns in a crosstab.

A slicer member set is an expression that returns a set of members from the same dimension. You can create multiple slicer member sets if you want to filter across two or more dimensions. You cannot create multiple slicer member sets against the same dimension.
You can add a child member of a report item as a slicer. For example, you create a crosstab with Product line as rows, Year as columns, and Revenue as the measure. You drag Sleeping Bags to the Slicer pane. When you run the report, all product lines appear in the crosstab, but a value appears only for the Camping Equipment row because Sleeping Bags is a child of Camping Equipment.

**Steps**

1. Open the report that you want.
2. Pause the pointer over the query explorer button and click the query to which you want to add a slicer.
3. Choose whether to create a slicer with one or more than one member:
   - To create a slicer with a single member, in the Insertable Objects pane, on the source tab, drag the member that you want to the Slicer pane.
   - To create a slicer with more than one member, on the toolbox tab, drag Slicer Member Set to the Slicer pane. Then, drag the members that you want to the Expression Definition box.
     
     You must join the members in the expression by using the set function. For example, the following expression contains the Fax and Telephone members from the Order Method dimension:
     
     ```
     set([Fax],[Telephone])
     ```

4. If you want to add members from another dimension, repeat step 3 to create a separate slicer member set.

**Filtering Data Using an SAP BW Data Source**

If you are working with an SAP BW data source, you must consider additional things when applying filters.

If you apply a filter and a sort to an item that corresponds to the leaf-level of a recursive hierarchy, siblings may appear in the report, although the aggregated values are correct. Siblings are characteristic values with the same parent of the filtered member.

Each level in an SAP BW hierarchy has an item with the same name as the level, and has a role of _businessKey. Such items are known as level identifiers. The level identifier must be an exact value, for the operators =, <, and > to work. For example, for the filter [Office] > 'Chicago' to work, the value 'Chicago' must exist in the data source. If you do not know the exact values, you can apply the filter to one of the attribute items associated with the level, such as [OfficeLongName] > 'C'. Filters on non-identifiers are possible, but they are slower because SAP BW is optimized for queries based on level identifiers.

When filtering time-related data, only the level identifier items of the time-related characteristics in SAP BW, such as 0CALDAY and 0CALMONTH, should be used for performing anything other than equality filters. All other (attribute) items in these hierarchies are formatted string representations of the characteristic values with which they are associated. These formatted values sort alphanumerically and not chronologically.

**Ignoring the Time Component in Date Columns**

Database systems use Date, Time, and Timestamp to represent date and time values. While a timestamp type holds a date and time component, an application may allow the RDBMS to default the time component. When rows are inserted, updated, or queried, the application may specify only a date value and leave the RDBMS to extend the value to include a default time (usually 00:00:00.000).

The challenge with a timestamp is when the application has no immediate interest in the time component. For example, the business question "How many orders were taken today?" implies all orders taken irrespective of what time in the day the order was booked. If the application defaulted the time component as it stored rows, the query used to answer the question returns the count of orders taken today. If the application stored the actual time component, the query likely returns no data, because the number of orders entered at midnight is probably zero.

Relying on dates defaulting the time can be dangerous if the application changes and starts to capture actual times. To avoid this problem, you can...
Truncating the Time by Creating a Derived Column

In the Framework Manager model, create a derived column using a calculated expression that truncates the time from a timestamp, and returns a timestamp containing the original date and a default time. For example, if you use an Oracle data source, the following expression creates the derived column DATEONLY from COL1, where COL1 contains the values as stored by the application while DATEONLY contains the dates with the default time of 12:00:00 AM:

```
Select COL1, trunc(COL1) as DATEONLY from [SCOTT_TIGER].DATES
```

**Tip:** You can change the data format of the column to show only the date value by specifying `Short` for the `Date Style` property.

You can then apply filters to the DATEONLY column that would return the correct results. If you create a parameter in Report Studio that filters on this column, the default prompt will present a date and time control because the data type is still a timestamp.

Converting the Timestamp to a Date

In the Framework Manager model, define a calculation that uses the CAST function to convert the timestamp to a date. For example, the following expression converts the data type of the column COL1 to date:

```
cast ([SCOTT_TIGER].[DATES].[COL1],DATE)
```

If you create a parameter in Report Studio that filters on this calculation, the default prompt presents a date control.

Ignoring the Time by Creating a Hi-Low Filter

You can create a filter to ignore the time. In the Framework Manager model, create a filter in the form date-column between date-lowtime and date-hightime. For example, the following expression returns all values between 00:00:00:000 and 23:59:59:000 for a given day:

```
[SCOTT_TIGER].[DATES].[COL1] between ?p1? and cast(substring(?p1?,1,10),'23:59.59.000',timestamp)
```

Sort Data

Organize data values in a report by specifying a sort order. Data can be organized in ascending or descending order based on the values in any data item.

If you are using a dimensional data source, you cannot sort data items from different dimensions that are intermixed. For example, you cannot sort on Data_Item1_Dimension1, Data_Item1_Dimension2, Data_Item2_Dimension1. If you do, an exception error occurs.

For SAP BW, each level in a hierarchy has an item with the same name as the level, and has a role of _businessKey. Such items are known as level identifiers.

For SAP BW, only the level identifier of all the time-related characteristics, such as 0CALDAY and 0CALMONTH, should be used for sorting. All other (attribute) items in these hierarchies are formatted string representations of the characteristic values with which they are associated. These formatted values sort alphanumerically and not chronologically.

**Tip:** By level identifier, we are referring to a query item with the same name as the level that has the role of _businessKey. Each level in a SAP BW hierarchy has a level identifier.

**Steps**
1. Open the report that you want.
2. Click the data item on which you want to sort.
3. From the Data menu, click Sort Ascending or Sort Descending.
An up arrow or down arrow appears beside the data item to indicate that a sort order has been set.

**Tip:** To remove a sort order, click the column, and from the Data menu, click **Don't Sort**.

When you specify a sort order for more than one column, the columns are sorted in the order that they were inserted in the report. For example, you add columns A, B, and C to a report and specify a sort order for each. When you run the report, column A is sorted first, followed by B and then C. You can change the order in which the columns are sorted.

### Perform Advanced Sorting

You can perform advanced sorting in a report. For example, in a list, you can sort columns within groups and change the sort order of columns. In a crosstab, you can sort a row or column by another item, such as Order year by Revenue.

**Steps**

1. Open the report that you want.
2. Click a column.
   - In a crosstab, click the row or column for which you want to perform advanced sorting.
3. From the Data menu, click **Advanced Sorting**.
4. If you are sorting a list and you want to sort a column within a group, do the following:
   - In the Groups pane, under the Groups folder, expand the folder of the grouped column (p. 43) that you want.
   - In the Data Items pane, drag the data items you want to sort to the Sort List folder.
     - **Tip:** You can also drag data items from the Detail Sort List folder.
   - Click the sort order button to specify ascending or descending order.
5. If you are sorting a list and you want to change the sort order of columns, in the Groups pane, change the order of columns in the Sort List folder of a group, or in the Detail Sort List folder.
   - **Tip:** Add items to the Detail Sort List folder to sort items that are not groups.
6. If you are sorting a crosstab, do the following:
   - From the Data Items pane, drag the item you want to sort on to the Sort List pane.
     - For example, you have a crosstab with Product line as rows, Order year as columns, and Revenue as the measure. To sort Order year by Revenue, drag Revenue to the Sort List pane.
   - Click the sort order button to specify ascending or descending order.
7. Click **OK**.

### Create Sections

Create sections in a report to show a data item as the heading of a section. When you run the report, separate sections appear for each value.

Creating sections is similar to creating headers by grouping on a data item (p. 43). The difference is that section headers appear outside the list, crosstab, chart, or repeater. In addition, you can group data items only in lists.

**Steps**

1. Open the report that you want.
2. Click the column that you want to show as a section heading.
3. Do one of the following:
   - From the Structure menu, click **Section**.
     - **Tip:** If the column is in a list or repeater, this menu option will create sections without creating a master-detail relationship. This can improve performance when running the report.
     - If the column is in a crosstab or chart, this menu option will create sections using a master-detail relationship.
• From the Structure menu, click Section using Master/Detail.
This menu option creates sections using a master-detail relationship.
Sections are created, and a section header appears. The data container that contains the column used to create sections is embedded in a list.

4. If you want to add or remove section headers and footers, from the Structure menu, click List Headers & Footers, select or clear the appropriate check boxes, and click OK.
The section header and footer check boxes appear under Overall header.

Remove Sections
To remove sections and reinsert the data item used to create the sections to the data container, do the following:

Steps
1. From the View menu, click Page Structure.
2. Expand the page containing the data container with the section.
3. Expand Page Body until you see the data container in which you added the section.
The data container is nested in the List Column Body object of the List object that is created when you add a section.
4. Drag the data container to Page Body.
The data container appears as a node of Page Body.
5. Delete the List object.
6. From the View menu, click Page Design.
7. In the Insertable Objects pane, click the data items tab.
8. Drag the data item that was used as a section header back into the data container.
9. If you created sections in a list without creating a master-detail relationship, click the data item and then click the group/ungroup button to ungroup the item.

For information about the page structure view, see "The Page Structure View" (p. 82).

Add a Summary
Add a summary to provide an overview of data in a report. An example of a summary is the total amount billed on an invoice. You can add the following summaries to a report.

<table>
<thead>
<tr>
<th>Summary</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Adds all existing values.</td>
</tr>
<tr>
<td>Minimum</td>
<td>Selects the smallest existing value.</td>
</tr>
<tr>
<td>Maximum</td>
<td>Selects the largest existing value.</td>
</tr>
<tr>
<td>Average</td>
<td>Adds all existing values and then divides by the count of existing values.</td>
</tr>
<tr>
<td>Count</td>
<td>Counts all existing values.</td>
</tr>
<tr>
<td>Calculated</td>
<td>Specifies that the summary is defined within the expression that is used to populate the column. It is expected that the expression itself is an aggregation function and should not require modification to provide summary values.</td>
</tr>
</tbody>
</table>

Tip: You can view the expression in the Properties pane by double-clicking the Expression property under Data Item.

Custom | Summarizes data based on an expression you define.  |
Chapter 4: Working with Data

Steps
1. Open the report that you want.
2. Click the column to which you want to add a summary.
3. From the Data menu, click the kind of summary you want.
   - In lists, the summary appears as a footer (p. 82). If the column to which you added a summary is grouped, group and overall summaries appear. In crosstabs and charts, the summary appears as a node (p. 48).
   - Tip: In lists, you can drag the summary to a header (p. 82). This is useful when you want to create a banded report (p. 206).
4. If you want to change the summary label, do the following:
   - Click the label.
   - In the Properties pane, click the Source Type property and then click the source type you want to use to define the label.
     - For example, click Data Item Value to produce a dynamic label for the summary based on data item values.
   - Depending on the source type you chose in the previous step, click the property below Source Type and specify the label.
     - For example, if clicked Data Item Value as the source type, click the Data Item Value property and click the data item you want to use to define the label.

Tips
- If you want to change a summary, click it, and in the Properties pane, under Data Item, click Aggregate Function or Rollup Aggregate Function and choose a different summary.
- In grouped lists, the order in which grouping and aggregation is applied will produce different results. If grouping is applied before aggregation, summaries for each grouping and an overall summary appear. If aggregation is applied before grouping, only an overall summary appears, since grouping information was not known when the aggregation was applied.
- In crosstabs, you can add multiple summaries at the same level. For example, you have a crosstab with Product line as rows, Order year as columns, and Revenue as the measure. For Product line, you can add the Total summary as a header, which will total all revenue for each order year. You can then add the Average summary as a footer, which will give the average revenue of all product lines for each order year.

Setting Aggregation Properties for a Column

In Report Studio, data can be summarized, or aggregated, for a column at the detail level and at the summary level.

Detail Level Aggregation

The detail level aggregation function aggregates data at the detail level. For example, you have a list with the columns Product line, Product name, and Revenue. If the aggregation function for Revenue is set to None, you see detailed rows when you run the report, each row representing an individual order for a product. If the aggregation function for Revenue is set to Total, you see one row for each product line, representing the total revenue of all orders.

Tip: To view the detail level aggregation function set for a column, in the Properties pane, under Data Item, see Aggregate Function.

By default, the aggregate function is inherited from the package, and takes effect only if the query property Auto-Group & Summarize is Yes. This property specifies whether Report Studio should apply aggregate functions to aggregate data items and group non-aggregate data items. If set to No, detail rows are rendered.

If the Aggregate Function property is set to None for a data item, you must set the Auto-Group & Summarize property to No to ensure that required data is not excluded from the query.

If you are working with a pre-aggregated data source, queries will retrieve the same data whether the Auto-Group & Summarize property is set to Yes or No, because the data is already grouped and summarized. For example, data in the Great Outdoors Company cube is pre-aggregated.
Chapter 4: Working with Data

Tip: To view this property, in Query Explorer (p. 127), click the query containing the column. You can find the property in the Properties pane.

Summary Level Aggregation
The summary level aggregation function aggregates facts to the higher levels. When you click a column and choose one of the available summaries in the Data menu, you specify a summary level aggregation function, and it appears in the header or footer of a list and crosstab.

Tip: To view the summary level aggregation function set for a column, in the Properties pane, see Rollup Aggregate Function.

Additional Aggregation Functions
In addition to the aggregation functions listed in the previous table, other functions are available for the Aggregate Function and Rollup Aggregate Function properties.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic</td>
<td>Summarizes values using the aggregation function that is set in the model or data source. If aggregation is inappropriate, the function None is applied; otherwise, the function Summarize is applied. If you want to ensure that a particular aggregate is applied, use one of the specific aggregate functions instead.</td>
</tr>
<tr>
<td>Median</td>
<td>Returns the median value of the selected data item.</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>Returns the standard deviation of the selected data item.</td>
</tr>
<tr>
<td>Count distinct</td>
<td>Returns the total number of unique non-null records.</td>
</tr>
<tr>
<td>Variance</td>
<td>Returns the variance of the selected data item.</td>
</tr>
<tr>
<td>None</td>
<td>Does not aggregate values.</td>
</tr>
<tr>
<td>Summarize</td>
<td>Specifies that the type of aggregation function that is applied depends on the data type of the item:</td>
</tr>
<tr>
<td></td>
<td>• Total is applied for numeric and interval values.</td>
</tr>
<tr>
<td></td>
<td>• Maximum is applied for date, time and date-time values.</td>
</tr>
<tr>
<td></td>
<td>• Count is applied for everything else.</td>
</tr>
<tr>
<td></td>
<td>If you want to ensure that a particular aggregate is applied, use one of the specific aggregate functions instead.</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>Specifies that the aggregate attribute is ignored. Instead, aggregates are computed based on the value of the Rollup Aggregation Function property.</td>
</tr>
<tr>
<td></td>
<td>This function is relevant only for reports that are upgraded from Cognos ReportNet(R) 1.x.</td>
</tr>
</tbody>
</table>

Changes in the Behavior of Count Between Cognos ReportNet(R) 1.1 and Cognos 8

In Cognos Reportnet 1.1, cases existed where double counting would occur when applying COUNT or COUNT DISTINCT to a query item. This occurred primarily when querying multiple query subjects that were joined 1-to-N in the model, and the counted item existed in the query subject on the 1 side of the join. The explanation is that COUNT or COUNT DISTINCT was applied after the join.
COUNT DISTINCT worked only when the item to which COUNT DISTINCT was applied was the same column used in the join. In this case, the column to be counted could have identical values for the different values used in the join condition.

In Cognos 8, improvements were made to the count functionality, but they cannot be handled through an automatic upgrade. The new approach avoids double counting on the 1 side of a 1-to-N join. The explanation is that COUNT or COUNT DISTINCT is now applied before the join operation.

As a result of this change, there is now a lesser need to use COUNT DISTINCT and, when used, it will be successful more often. COUNT DISTINCT will no longer be required to overcome double counting. Instead, it can be used as intended to select distinct values that exist in a query subject.

For cases where you want to count repeated occurrences of a value, we recommend that you do one of the following:

- Apply a count operation on a column based on a query in which an explicit join occurs. This applies the count after the join.
- Count rows in a report by using a layout calculation object (p. 89) or by counting the literal value 1.

### Aggregating Values in Crosstabs and Charts

In crosstabs and charts, aggregated values are calculated using one of the following aggregate expressions:

- \( \text{aggregate(} \text{measure within set set expression} \text{)} \)
  Aggregates the member values from the data source within the current content.

- \( \text{aggregate(} \text{measure within detail data item} \text{)} \)
  Aggregates the lowest level of details in the report.

- \( \text{aggregate(} \text{measure within aggregate data item} \text{)} \)
  Aggregates each level of details in the report.

You decide which aggregate expression is used by setting the aggregation mode (Tools menu, Set Options, Edit tab.) (p. 28).

For example, in the following crosstab, if you specified Total as the summary, these aggregate expressions are produced for each aggregation mode:

- **Total ([Revenue] within set [Year])**
  This expression totals the Year values from the data source at the intersecting product line. At the bottom right corner, it totals the aggregate over all product lines for each year.

- **Total ([Revenue] within detail [Year])**
  This expression totals the Month values visible in the report at the intersecting product line. At the bottom right corner, it totals all of the intersecting Month - Product line values visible in the report.

- **Total ([Revenue] within aggregate [Year])**
  This expression totals the Month values visible in the report at the intersecting product line into quarters and then totals those values into years. At the bottom right corner, it does the same, but starting with the aggregate over all product lines for each month.

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Product line</th>
<th>Aggregate(Product line)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Quarter</td>
<td>Month</td>
</tr>
<tr>
<td></td>
<td>Aggregate (Quarter)</td>
<td></td>
</tr>
<tr>
<td>Aggregate (Year)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In simple cases, the members and values visible in the report and the aggregate rules in the report are the same as those in the data source, and all of these expressions produce the same results.
For example, for the Year, Quarter, and Month values, if you are totaling the values for all months in all quarters to obtain a year total, it makes no difference whether the visible values, the values in the cube, or month and quarter values are used. The result is the same.

Different results appear when you start filtering, changing aggregation types, or use set expressions or unions.

For example, if you replace Month with an expression that returns only the first month in each quarter (January, April, July, and November), then the visible values you see in the crosstab are for only those months.

If you total the Year values from the data source using the within set aggregation mode \( \text{total} ([\text{Revenue}] \text{ within set } [\text{Year}]) \), the result will include all months.

If you total the visible month values using the within detail aggregation mode \( \text{total} ([\text{Revenue}] \text{ within detail } [\text{Year}]) \), then you are totaling the values from only the first month in each quarter. Consequently, you get different results.

In most cases, you should use the within detail aggregation mode because the results are easiest to understand, and they are the same as for footers in a grouped list report. In more complex cases, you may consider the within aggregate aggregation mode. The within set aggregation mode should be reserved for reports with a purely dimensional focus. For example, when there are no detail or summary filters defined in the report.

Create a Calculation

Create a calculated column to make a report more meaningful by deriving additional information from the data source. For example, you create an invoice report, and you want to see the total sale amount for each product ordered. Create a calculated column that multiplies the product price by the quantity ordered.

If an expression is used in multiple reports, or by different report authors, ask your modeler to create the expression as a standalone object in the model and include it in the relevant package.

You can add calculations to lists, crosstabs, and all other data containers. You can also add calculations directly to a page header, body, or footer. However, you must first associate a query to the page. For more information, see "Add a Page" (p. 94).

Steps

1. Open the report that you want.
2. In the Insertable Objects pane, click the toolbox tab.
3. To create a calculation that will be applied to data, do the following:
   - Drag Query Calculation to the report.
     The Create Calculation dialog box appears.
   - In the Name box, type a name for the calculation and click OK.
4. To create a calculation in the layout that contains run-time information, such as current date, current time, and user name, drag Layout Calculation to the report.
5. In the Available Components box, define the calculation:
   - If you want to include data items not shown in the report, on the source tab, double-click data items.
   - If you want to include data items that are in the report but not necessarily in the model, such as calculations, on the data items tab, double-click data items.
   - If you want to include data items from a specific query (p. 127) in the report, on the queries tab, double-click data items.
   - If you want to add functions, summaries, and operators to the filter expression, on the functions tab, double-click elements.
   - If you want to include a value that is derived from a parameter, on the parameters tab, double-click a parameter.

Parameters are used to define prompts (p. 117), drill-through reports (p. 164), and master-detail relationships (p. 170).
Tip: You can also type the expression directly in the **Expression Definition** box. For more information about creating expressions, see "Using the Expression Editor" (p. 223).

- If you want to include data items not shown in the report, on the source tab, double-click data items.

6. Click the validate expression button and click **OK**.

### Format Data

Format data in a report to improve readability. For example, you can show all date values in the order year, month, and day. If you do not set properties here, data is formatted according to the properties set in the model. If the properties were not set in the model, data is formatted according to the International Components for Unicode (ICU) formats.

You can also format data based on a condition (p. 155) or specify the format for a particular object.

When using a Cognos cube as a data source, mixed currency values use the asterisk character (*) as the unit of measure. Mixed currency values occur when you calculate values with different currencies.

The same behavior occurs for SAP BW data sources.

### Steps

1. Open the report that you want.
2. From the **Data** menu, click **Layout Data Format**.
3. In the **Format type** box, click a format type.
   - The properties that you can set for the selected format type appear in the **Properties** box.
4. If you clicked the **Currency** format type and require different currencies in the report, click the **add button**. In the **Currencies** dialog box, select the currencies you want and click **OK**.
   - For example, you may have one column whose values are in euros and another column whose values are in US dollars.
5. Set the properties that you want.
   - If you added currencies in step 4, click each one and set the properties you want. If you did not add any currencies, any properties you set will apply to all currencies.
   - For properties in which you type meta-characters that represent certain types of information, such as YYYY-MM-DD for dates, the meta-characters required depend on the authoring language specified for the report. For more information, see "Using Patterns to Format Data" (p. 419).
   - If you specify a value for the **Pattern** property, all other formatting properties are ignored, with the following exceptions:
     - **Missing Value Characters**
     - **Zero Value Characters**
     - **Negative Pattern**
   - Some properties are **language-sensitive** and should only be changed with caution.
6. Click **OK**.

The data formatting properties you set are applied to objects only in the current layout. If a data item contains values in multiple currencies, but only a subset of those currencies have defined formats, the default format for the locale you are working in is applied to values for which no format is specified.
Specify the Format for an Object

Specify the format for a particular object if you are not getting the results you want. For example, you add a measure to a report, and you want to see two decimals when you run the report. You set the number of decimals to two for the Number format type for the current layout. However, when you run the report, you see more than two decimals for the measure. To get the results you want, you must map the measure to the Number format type.

Steps
1. Click the object.
2. In the Properties pane, double-click the Data Format property.
3. Under Format type, click the format type you want to apply to the object.
4. If you want to override any of the properties of the format type that were defined for the current layout, in the Properties box, click the property and specify its value.
5. Click OK.

Specifying the Number of Decimals

When specifying the number of decimals, Cognos 8 uses the IEEE 754 default rounding mode known as half even. With half even rounding, numbers are rounded toward the nearest truncated value, unless both truncated values are equidistant, in which case the value ending in an even digit is chosen. That is,

• if the digit immediately after the precision to be displayed is greater than 5, the number is rounded up.
• if the digit immediately after the precision to be displayed is less than 5, the number is rounded down.
• if the digit immediately after the precision is a 5, then the number is rounded down when the preceding digit is even and rounded up when the preceding digit is odd.

For example, if you specify no decimals, the number 78.5 is rounded to 78, while the number 73.5 is rounded to 74.

In addition, if the maximum number of decimals is lower than the actual number of decimals in the number, the number is rounded to the maximum number of decimals.

Locale-sensitive Properties

Report Studio contains an extensive library of customized properties adapted to users from different regions who speak different languages. If, for example, a modeler specifies that a given data item is a currency, only the proper currency symbol must be specified. When reports are created, Report Studio automatically adapts the format of the currency numbers to each user according to the content language specified in Cognos Connection.

When modelers or report authors specify properties, these properties override user preferences and risk creating inconsistent formatting for users of other cultures. It is usually much easier and safer to let Report Studio take care of formatting. For example, for the date format type, different regions use different characters to represent the date separator. If you specify a date separator, you may confuse users in other regions.

The following data formatting properties are locale-sensitive.

• Currency Symbol Position
• Date Separator
• Date Ordering
• Calendar Type
• Time Separator
• Display AM/PM Symbols
• Clock
• Decimal Symbol
• Negative Sign Position
Specify the List of Properties for a Layout Object

Specify the list of properties for an object when you must reference a data item that is in a query but is not in the layout. For example, you want to add a layout calculation to a list that uses a data item that is in the query in its definition. If the data item does not appear in the list, you must reference it in order to make the layout calculation work.

Steps
1. Open the report that you want.
2. Click the layout object that you want.
   Tip: For a list of layout objects for which you can specify a list of properties, see the Properties property in "Report Studio Object and Property Reference" (p. 333).
3. In the Properties pane, double-click the Properties property.
4. Select the data items you want and click OK.

Show Data for a Specific Time Period

Show data for a specific time period to associate a report with a business time period rather than the execution time. For example, you have a monthly report that you run at the beginning of each month, and you want the last business day of the previous month to appear rather than the day on which you run the report.

If the report functions AsOfDate() and AsOfTime() are added to the report, they will return a value based on the results of the As of Time Expression object. If the As of Time Expression object is not added to the report, these two functions return the date and time at which the report is run.

If the As of Time Expression object is added more than once in the report, the first occurrence of the object in the layout that returns a valid value is used.

Steps
1. Open the report that you want.
2. In the Insertable Objects pane, on the toolbox tab, drag As of Time Expression to the report.
3. Double-click As of Time Expression.
4. In the Expression Definition box, type the expression that you want and click OK.
   Tip: You can drag a function that returns a constant from the Constants folder in the functions tab. You can then change the constant to the value that you want to use.
   If you do not specify a time, the default time 12:00:00.000 AM is used.

Adding Prompts

You can add prompts to a report to add interactivity for users. Prompts act as questions that help users to customize the information in a report to suit their own needs. For example, you create a prompt so that users can select a product type. Only products belonging to the selected product type are retrieved and shown in the report.
Chapter 4: Working with Data

Prompts are composed of three interrelated components. Parameters, which are based on parameterized filters, form the questions you want to ask users. Prompt controls provide the user interface in which the questions are asked. Finally, parameter values provide the answers to the questions.

Report Studio provides several ways to create prompts. You can

- use the Build Prompt Page tool
- build your own prompt and prompt page
- create a parameter to produce a prompt
- insert prompts directly into the report page

You can also create prompts in the package. For more information, see the Framework Manager User Guide.

Use the Build Prompt Page Tool

Use the Build Prompt Page tool to quickly add prompts to a report. Report Studio creates the prompts for you in a default prompt page.

Steps
1. Open the report that you want.
2. Click the column you want users to be prompted on.
   - If you want to create multiple prompts or a cascading prompt, click more than one column.
3. From the Tools menu, click Build Prompt Page.
   - A prompt page is created that has:
     - a page header
     - a prompt control for each selected column
     - a page footer containing Cancel, Back, Next, and Finish prompt buttons

You can add more objects or modify existing elements. For example, you can change the prompt control chosen by Report Studio.

Build Your Own Prompt and Prompt Page

Create your own prompt and prompt page to control how they appear in a report.

Steps
1. Open the report that you want.
2. Pause the pointer over the page explorer button and click Prompt Pages.
3. In the Insertable Objects pane, on the toolbox tab, drag Page to the Prompt Pages box.
4. Double-click the page you just created.
5. In the Insertable Objects pane, on the toolbox tab, drag one of the following prompt controls to the prompt page.

<table>
<thead>
<tr>
<th>Prompt control</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text Box Prompt</td>
<td>Retrieves data based on a value that you type. Use this control when users know exactly what value they want to enter, such as a name or account number.</td>
</tr>
<tr>
<td>Value Prompt</td>
<td>Retrieves data based on values that you select from a list. Use this control to show the list of possible values from which users can choose. Note: The maximum number of items that can appear in a list is 5000.</td>
</tr>
</tbody>
</table>
The **Prompt Wizard** dialog box appears.

6. If you are creating a text box, date, time, date and time, interval, or generated prompt, do the following:
   - Create a new parameter for the prompt or use an existing parameter.
   - Click Next.

<table>
<thead>
<tr>
<th>Prompt control</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select &amp; Search Prompt</strong></td>
<td>Retrieves values based on search criteria that users specify. Data is then retrieved based on values users select from the search results. Use this control instead of a value prompt if the list of values is very long, which can slow down performance. <strong>Tip:</strong> Users have the option of performing a case sensitive or case insensitive search. A case sensitive search is faster, while a case insensitive search usually returns more values. You cannot use this control if you are working with SAP BW data sources.</td>
</tr>
<tr>
<td><strong>Date Prompt</strong></td>
<td>Retrieves data based on a date that you select. Use this control when you are filtering a date column. With this control, users can retrieve data for a specific day, a set of days, or a range of days.</td>
</tr>
<tr>
<td><strong>Time Prompt</strong></td>
<td>Retrieves data based on a time that you select. Use this control to restrict a report to a particular time or time range. For example, you can use this control to see how many orders are received after business hours. You can then use this information to determine the number of staff needed to work after hours.</td>
</tr>
<tr>
<td><strong>Date &amp; Time Prompt</strong></td>
<td>Retrieves data based on a date and time that you select. Use this control when you are filtering a datetime or timestamp column. This control is useful for specifying ranges. For example, you can retrieve all orders received from Monday at 12:00 a.m. to Friday at 5:00 p.m.</td>
</tr>
<tr>
<td><strong>Interval Prompt</strong></td>
<td>Retrieves data based on a time interval that you specify. Use this control to retrieve data that is related to the passage of time. For example, you can use this control to retrieve a list of products that were returned 30 or more days after they were purchased.</td>
</tr>
<tr>
<td><strong>Tree Prompt</strong></td>
<td>Retrieves data based on values you select from a list. Values are organized hierarchically. This control is useful when you are working with dimensional data sources. Data is shown from the top of a dimension hierarchy to the most detailed member, and users can choose the level of detail they want to view in the report. For more information about tree prompts, see &quot;Control the Data That Appears in a Tree Prompt&quot; (p. 127).</td>
</tr>
<tr>
<td><strong>Generated Prompt</strong></td>
<td>Selects a prompt control based on the data type of the data item. This control acts like a placeholder. When you run the report, the control is replaced by the appropriate prompt control. For example, if you are prompting date values, the control is replaced by a date &amp; time prompt.</td>
</tr>
</tbody>
</table>
• If you create a new parameter, define the expression by selecting a data item from the package and the operator you want to use.
  
  **Tip:** Make the prompt optional by selecting the Make the filter optional check box. When selected, users will not be required to choose a value when the report is run.

• Go to step 8.

7. If you are creating a value, select & search, or tree prompt, do the following:
   • Create a new parameter for the prompt or use an existing parameter.
   • Click Next.
   • If you created a new parameter, and you want to use the parameter to filter data, select the Create a parameterized filter check box and define the expression by selecting a data item from the package and the operator you want to use.

You can use parameters for other purposes besides filtering data. For example, you can use a parameter to provide a value for a layout calculation, such as showing a user’s name in the report. When the report is run, you can use a parameter to prompt the user to type his name and have it appear in the report.

  **Tip:** Make the prompt optional by selecting the Make the filter optional check box. When selected, users will not be required to choose a value when the report is run.

• Click Next.

• If you created a parameterized filter and you have more than one query defined in the report, select the query you want to filter and then click Next.

• Select the Create new query check box to create the query that will be used to build the list of data values shown when the report is run.

  **Tip:** Do not create a new query if you want to link the prompt to an existing query or if you intend to create the query at a later time.

• Click the ellipsis points (...) beside Values to use and click the data item you want to prompt on.

  **Tip:** You can choose a data item that is different than what users will see when they are prompted (see the following step). For example, you want to prompt on Product line. The package contains the data items Product line and Product line code. You can choose Product line code as the values to use for faster data retrieval.

• Click the ellipsis points (...) beside Values to display and click the data item that you want users to see when they are prompted.

• To create a cascading prompt, click the Cascade Source box, and select the parameter that represents the cascade source.

8. Click Finish.

The prompt control is added to the prompt page. A prompt page is like a report page. You can insert graphics, text, and so on, and apply any formatting you want.

You can also modify the properties of the prompt control by clicking it and making changes in the Properties pane.

**Example - Create a Report Showing Products Returned for a Specific Time Interval**

You are a report author at the Great Outdoors Company, which sells sporting equipment. You are requested to create a report that shows products returned for a time interval specified by the user.

**Steps**

1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper-right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, double-click the following data items to add them to the list:
   • Order number
   • Product name
• Return quantity
  Tip: You can find these items in the Orders and Products folders.
6. In the Insertable Objects pane, on the toolbox tab, drag Query Calculation to the right of Return quantity in the list.
7. In the Name box, type the following and click OK:
  Time Interval
8. In the Expression Definition box, type the following and click OK:

   
   [gosales_goretailers].[Orders].[Return date]-[gosales_goretailers].[Orders].[Order date]

9. From the Data menu, click Filters.
10. Click the add button.
11. In the Expression Definition box, type

   
   [gosales_goretailers].[Orders].[Return date]-[gosales_goretailers].[Orders].[Order date] > ?p1?

12. Click OK twice.
   A parameterized filter is created that will return data when the difference between the return date and the order date is greater than the value specified by the user.
13. Pause the pointer over the page explorer button and click Prompt Pages.
14. In the Insertable Objects pane, drag Page to the Prompt Pages pane, and then double-click it.
15. In the Insertable Objects pane, on the toolbox tab, drag Interval Prompt to the work area.
   The Prompt Wizard dialog box appears.
16. Click Use existing parameter, and then click p1.
17. Click Finish.
18. Run the report.
An interval prompt appears.
19. In the Days box, type a value and click Finish.
   Tip: You can also type values for the Hrs and Mins boxes.
A list report appears, showing all products that were returned after the time interval you specified. For example, if you type 30 days, the list will show products that were returned more than 30 days after the order date.

<table>
<thead>
<tr>
<th>Order number</th>
<th>Product name</th>
<th>Return quantity</th>
<th>Time Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>9329</td>
<td>Alice Relief</td>
<td>0</td>
<td>45 days 3 hours 5 minutes 40 seconds</td>
</tr>
<tr>
<td>6020</td>
<td>Alice Relief</td>
<td>2</td>
<td>47 days 14 hours 26 minutes 54 seconds</td>
</tr>
<tr>
<td>7344</td>
<td>Alice Relief</td>
<td>4</td>
<td>58 days 17 hours 44 minutes 6 seconds</td>
</tr>
<tr>
<td>9595</td>
<td>Bear Edge</td>
<td>2</td>
<td>36 days 20 hours 52 minutes 49 seconds</td>
</tr>
<tr>
<td>5130</td>
<td>Bear Edge</td>
<td>4</td>
<td>36 days 20 hours 52 minutes 49 seconds</td>
</tr>
<tr>
<td>8596</td>
<td>Bear Edge</td>
<td>4</td>
<td>37 days 3 hours 9 minutes 14 seconds</td>
</tr>
<tr>
<td>6337</td>
<td>Bear Edge</td>
<td>2</td>
<td>37 days 4 hours 11 minutes 16 seconds</td>
</tr>
<tr>
<td>7077</td>
<td>Bear Edge</td>
<td>2</td>
<td>42 days 15 hours 27 minutes 27 seconds</td>
</tr>
<tr>
<td>7999</td>
<td>Bear Survival Edge</td>
<td>4</td>
<td>31 days 18 hours 36 minutes 26 seconds</td>
</tr>
<tr>
<td>9529</td>
<td>Bear Survival Edge</td>
<td>2</td>
<td>34 days 20 hours 52 minutes 15 seconds</td>
</tr>
<tr>
<td>6756</td>
<td>Bear Survival Edge</td>
<td>4</td>
<td>35 days 6 hours 19 minutes 30 seconds</td>
</tr>
<tr>
<td>2182</td>
<td>Bear Survival Edge</td>
<td>8</td>
<td>41 days 11 hours 29 minutes 43 seconds</td>
</tr>
<tr>
<td>6495</td>
<td>Bear Survival Edge</td>
<td>10</td>
<td>48 days 10 hours 40 minutes 30 seconds</td>
</tr>
<tr>
<td>6701</td>
<td>Bear Survival Edge</td>
<td>2</td>
<td>53 days 21 hours 55 minutes 22 seconds</td>
</tr>
<tr>
<td>1303</td>
<td>BugShield Extreme</td>
<td>8</td>
<td>50 days 20 hours 51 minutes 48 seconds</td>
</tr>
<tr>
<td>5105</td>
<td>BugShield lotion</td>
<td>2</td>
<td>47 days 13 hours 31 minutes 45 seconds</td>
</tr>
<tr>
<td>8109</td>
<td>BugShield Natural</td>
<td>5</td>
<td>57 days 5 hours 13 minutes 19 seconds</td>
</tr>
<tr>
<td>8201</td>
<td>BugShield Natural</td>
<td>0</td>
<td>38 days 2 hours 7 minutes 10 seconds</td>
</tr>
<tr>
<td>6035</td>
<td>Cefalmine Relief</td>
<td>2</td>
<td>44 days 17 hours 43 minutes 5 seconds</td>
</tr>
</tbody>
</table>
Create a Parameter to Produce a Prompt

Report Studio can automatically generate prompted reports based on parameters you create. When you run the report, Report Studio can generate a prompt page for each parameter not associated to an existing prompt page, depending on whether the prompt run option (p. 33) is selected or not.

You also define parameters when you want to create a drill-through report (p. 164), and you can use parameters to define master-detail relationships (p. 170).

Steps

1. Open the report that you want.
2. From the Data menu, click Filters.
3. On the Detail Filters tab, click the add button. The Detail Filter dialog box appears.
4. In the Available Components box, click the source or data items tab to select the data item you want to use for the prompt:
   - To filter data based on data items not shown in the report, double-click a data item on the source tab.
   - To filter data that appears in the report but not necessarily in the model, such as calculations, double-click a data item on the data items tab.
   The data item appears in the Expression Definition box.
5. In the Expression Definition box, type an operator after the data item, or select an operator from the functions tab.
   The operator sets some of the default properties of the prompt. For example, if the operator is equals (=), users will be able to select only a single prompt value, and the prompt’s Multi-Select property is set to No.
   For more information about creating expressions, see "Using the Expression Editor" (p. 223).
6. Type a name after the operator to define the prompt parameter. A question mark must precede and follow the name.
7. Click OK.
8. In the Usage box, click one of the following:
   - To create a required prompt, click Required.
   - To create an optional prompt, click Optional.
   - To specify not to use the prompt, click Disabled.
9. Click OK.

Create a Prompt Directly in a Report Page

You can add prompt controls directly in a report page instead of creating a prompt page.

Prompt controls that are added to report pages will not appear in the following:
- saved reports
- PDF reports
- reports that are sent to users by email
- scheduled reports

Prompt controls are by their very nature interactive. They are used to satisfy parameter values before running a report. As a result, prompt controls added to a report page only appear when you run the report in HTML format. When you run a report in HTML format, users select which values they want to see, and the report is refreshed, producing a new report.

For the non-interactive reports listed above, prompt parameter values must be collected and satisfied before the report is run. You provide the parameter values you want using the Run options tab in Cognos Connection. If you do not provide all the required values, the report will fail to run. You can access the Run options tab by clicking the set properties button for the report.
If you are using the sample reports that come with Report Studio, the reports Consumer Trends, GO Media, Product Line by Year-prompt, and Sales Representative Contact List contain prompt controls on report pages.

**Steps**

1. Open the report that you want.
2. In the Insertable Objects pane, on the toolbox tab, drag a prompt control to the location where you want it to appear.
   The Prompt Wizard dialog box appears.
3. Provide the information necessary to create the prompt.
   **Tip:** Make the prompt optional by selecting the Make the filter optional check box. Otherwise, when you run the report for the first time, the prompt appears in a generated prompt page rather than in the report page. Alternatively, you can specify a default selection for the prompt (p. 125).
4. In the work area, click the prompt.
5. In the Properties pane, set the Auto-Submit property to Yes.
   If you do not set the Auto-Submit property to Yes, the report will not refresh when users select a different prompt value.
   **Tip:** An alternative to setting the prompt to auto-submit is to add a prompt button from the toolbox tab and setting its Type property to Finish.

The prompt control is added to the report page. You can modify its properties by clicking it and making changes in the Properties pane.

**Modifying Prompts**

For each prompt you create, you can modify its properties by specifying values in the Properties pane. For example, you can

- change the prompt control interface
- specify that a prompt requires user input
- allow users to select multiple values
- show or hide prompt status
- specify default selections
- specify prompt values
- add a prompt button
- create a cascading prompt

Some properties you set for a prompt may be overridden under some conditions. For example, some properties set for the filter associated with a prompt may override the corresponding prompt property.

**Change the Prompt Control Interface**

By default, when you create a prompt, Report Studio selects the prompt control interface. You can change the prompt control interface to something different, depending on the type of prompt you created. For example, for a value prompt, you can choose a drop-down list, a list box, or a radio button group.

**Steps**

1. Open the report that you want.
2. Click the prompt control you want to modify.
3. In the Properties pane, click the Select UI property and click the interface you want.

**Specify That a Prompt Requires User Input**

You can specify that a prompt requires user input before the report can run.
Step 1: Open the report that you want.
Step 2: Click the prompt control you want to modify.
Step 3: In the Properties pane, click the Required property and click Yes.
Step 4: Pause the mouse over the page explorer button and go to a report page.
Step 5: From the Data menu, click Filters.
Step 6: Click the filter associated with the prompt.
Step 7: In the Usage box, click Required and then click OK.

When you run the report, a star appears next to the prompt indicating that the user must select or type a value.

If you have a cascading prompt and the parent prompt control is required, the child prompt control is disabled. This ensures that users choose at least one value in the parent prompt before they can choose a value in the child prompt. Conversely, if the parent control is optional, then the child control is populated. This gives users the ability to choose values in the child prompt without having to choose a value in the parent prompt.

### Allow Users to Select Multiple Values in a Prompt

You can allow users to select more than one value or a range of values in a prompt. For example, you have a prompt for which users must select a product line. You can modify the prompt so that users can select more than one product line.

If you enable multiple selections, the Auto-Submit property is always set to no.

**Steps**

1. Open the report that you want.
2. Click the prompt control that you want to modify.
3. In the Properties pane, choose whether to allow users to specify more than one value or a range of values:
   - To allow users to specify more than one value, set the Multi-Select property to Yes.
   - To allow users to specify a range of values, set the Range property to Yes.
4. Pause the mouse on the page explorer button and go to a report page.
5. From the Data menu, click Filters.

If you have more than one query defined in the report, you must first click an object linked to a query. If there is more than one query defined in the report, click an object that is linked to the query you want.

6. Double-click the filter associated with the prompt.
7. Change the operator to one of the following:
   - If you are creating a multi-select prompt, change the operator to in.
     For example, [gosales_goretailers].[Products].[Product_line] in ?Product line? allows users to select multiple product lines.
   - If you are creating a range prompt, change the operator to in_range.
     For example, [gosales_goretailers].[Orders].[Margin] in_range ?Margin? allows users to specify a margin range.
8. Click OK twice.

### Show or Hide Prompt Status

Each prompt you create in a report provides dynamic validation when the report is run. Validity checks are performed to ensure that the data is correct, and that required values are supplied. For example, a star appears next to each required prompt. An arrow appears next to a prompt if you must select or type a value. If you type an incorrect value, a dotted line appears. You can choose whether to show the star and arrow for each prompt.

**Steps**

1. Open the report that you want.
2. Click the prompt control you want to modify.
3. In the Properties pane, click the Hide Adornments property and click Yes to hide the prompt characters or No to show them.

Specify a Default Selection for a Prompt

You can specify a default selection for a prompt so that users do not have to select or type a value when they run the report.

The values you specify must exactly match the corresponding values in the database. If you are specifying values for a date prompt control, you must type the value in the format Y-M-D when prompting a date column. When prompting a date-time column, type the value in the format Y-M-D hh:mm:ss.ms.

Steps
1. Open the report that you want.
2. Click the prompt control that you want to modify.
3. In the Properties pane, double-click the Default Selections property.
4. Click the add button, and then choose whether you want to define a single value or a range of values:
   • Click Simple Selection to define a single value.
   • Click Range Selection to define a range of values.
5. If you chose to define a single value, type the value you want as the default selection.
6. If you chose to define a range of values, type the minimum and maximum values of the range in the Minimum Value and Maximum Value boxes, respectively.
7. Click OK.
8. Repeat steps 4 to 6 to specify other default selections.
   You can specify other default selections only if the Multi-Select property for the prompt is set to Yes.
9. Click OK.

Specify Prompt Values

Provide your own values in a prompt
• to show something different from what is in the database
• to improve performance by not accessing the database
• to provide text for optional prompts, such as Select a value
• to restrict the number of values available

For example, you have a prompt in which users choose a country. For the database value United States, you want USA to appear in the prompt.

Steps
1. Open the report that you want.
2. Click the prompt control that you want to modify.
3. In the Properties pane, double-click the Static Choices property.
4. Click the add button.
5. In the Use box, type the prompt value you want to add.
6. In the Display box, type the value that will appear in the prompt.
7. Click OK.
8. Repeat steps 4 to 7 to add other prompt values.
9. If you want to link a prompt value to a condition (p. 155), do the following:
   • Click the Variable drop-down list and choose the variable you want to use or create your own.
     For information about creating variables, see "Add a Variable" (p. 153).
   • Click the Value drop-down list and click one of the possible values for the variable.
• Click the static value you want to link to the variable and click the edit button.
• In the Display box, type the value that you want to appear in the prompt for that particular value of the variable.
• Repeat this procedure for each additional value.

10. Click OK.

Add a Prompt Button

Add prompt buttons so that users can submit selected items, cancel a report, or navigate between pages.

When you are building prompts and prompt pages (p. 118), you may have to add a prompt button to submit selections. Some prompt controls, such as the value prompt, can be set to submit selections automatically. Other prompt controls, such as the date prompt, require a prompt button.

Steps

1. Open the report that you want.
2. Pause the pointer over the page explorer button and click the report or prompt page that contains the prompt control for which you want to add a prompt button.
3. In the Insertable Objects pane, on the toolbox tab, drag Prompt Button to the work area.
4. Click the prompt button and in the Properties pane, click the Type property. Choose one of the following actions.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancel the report</td>
<td>Cancel</td>
</tr>
<tr>
<td>Go to the previous prompt page</td>
<td>Back</td>
</tr>
<tr>
<td>Go to the next prompt page</td>
<td>Next</td>
</tr>
<tr>
<td>Run the report</td>
<td>Finish</td>
</tr>
<tr>
<td>Reprompt the user</td>
<td>Reprompt</td>
</tr>
</tbody>
</table>

Tip: Reprompting users is useful when you have cascading prompts.

Create a Cascading Prompt

Create a cascading prompt to use values from one prompt to filter values in another prompt. For example, a report contains the columns Product line and Product type. You create prompts for these columns, and you specify that the Product type prompt is a cascading prompt that uses Product line as the cascading source. When users select a product line, they see only the product types related to the selected product line.

Steps

1. Open the report that you want.
2. If you want to make the cascading source a required prompt, click it and in the Properties pane, set the Required property to Yes.
3. Click the prompt control that you want to use as a cascading prompt.
4. In the Properties pane, double-click the Cascade Source property.
5. Click the parameter that represents the cascade source, and click OK.
6. If the prompt allows users to select multiple values, add a prompt button to the cascade source to provide the cascading prompt with the appropriate values:

• In the Insertable Objects pane, on the toolbox tab, drag Prompt Button to the report.
• Click the prompt button and in the Properties pane, click the Type property and click Reprompt.
• If you want to change the text in the prompt button, in the Insertable Objects pane, on the toolbox tab, drag **Text Item** to the prompt button and type the text you want.

For more information about how to create cascading prompts, see the Report Studio Tour.

**Control the Data That Appears in a Tree Prompt**

You can control what data appears in a tree prompt and how the data is structured to get the results that you want. To do this, you add various functions to the filter expression.

In addition, the operator that you chose in the **Prompt Wizard** dialog box (p. 118) controls what appears next to each prompt value. If the operator is in or not in, check boxes appear next to each prompt value. If the operator is equals (=), no check boxes appear.

**Steps**

1. Open the report that you want.
2. Pause the pointer over the query explorer button and click the query that is associated with the prompt.
3. In the **Data Items** pane, double-click the data item that you are prompting on.
4. In the **Expression Definition** box, type one of the following functions and click **OK**.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show the hierarchical structure of all members in the hierarchy. If this function is not used, all members are shown in a flat list.</td>
<td><code>rootmembers(data_item)</code></td>
</tr>
<tr>
<td>Show the descendants of the data item in a hierarchical structure, where x represents the level. For example, if you are prompting on the Year hierarchy, and x=1, you will see 2004, 2005, and 2006 in the tree. If x=2, you will see 2004 Q1, 2004 Q2, and so on.</td>
<td><code>descendants(rootmembers(data_item, x))</code></td>
</tr>
<tr>
<td>Show the children of a member. For example, 2004 Q1, 2004 Q2, 2004 Q3, and 2004 Q4 appears for the member 2004.</td>
<td><code>children(member)</code></td>
</tr>
</tbody>
</table>

**Working with Queries**

Queries specify what data appears in the report. In Report Studio, you create and modify queries using Query Explorer. Query Explorer provides an alternative way to modify existing reports or author new reports. You can use Query Explorer to perform complex tasks and other tasks that are more difficult to do in the report layout. For example, use Query Explorer to

- improve performance by changing the order in which items are queried from the database
- view or add filters and parameters, and modify their properties
- view or add dimensions, levels, and facts
- incorporate SQL statements that come from other reports or reports that you write
- create complex queries using set operations and joins

**Relating Queries to Layouts**

Queries and layouts work together. After you decide the type of data that you need, you must create a layout in which to show the results. Each column of data must be both selected for the query, and shown in a layout unless there are some columns that you don’t want to show. The query and layout portions of a report must be linked to produce a valid report.
Report Studio automatically links query and layout. For example, when you use Report Studio and the list report template, query and layout are automatically linked. In addition, you can create a query and manually link it to a data container. In the layout, when you drag a data container to the work area, you can specify which query to use by clicking the Query property in the Properties pane. Then you add the items in the query that you want to see in the layout by dragging them from the data items tab in the Insertable Objects pane.

**Working with Dimensional Data Sources**

When you are working with SAP BW data sources, you can use only a single hierarchy in a query. Creating queries using a mix of OLAP and relational data is not supported. If you create queries using a database for which you do not know the type, consult your database administrator or modeler.

When performing multi-cube queries using dimensional data sources, the following restrictions apply:
- Only basic operators (+, *, /, -) are available for cross-cube calculations.
- Inner joins are not supported.
- All joins for multi-cube queries are outer joins.
- You cannot sort or filter on a conformed dimension (query subject).
- Conformed dimensions are created in Framework Manager.
- Viewing MDX using the Generated SQL/MDX query property may not show you the actual MDX that is executed. This is because when a multi-cube query is executed, a number of smaller queries are actually executed.

**Add Queries to a Report**

You can create multiple queries in Query Explorer to suit your particular needs. For example, you can create a separate query for each data container in a report to show different data.

**Steps**

1. Open the report that you want.
2. Pause the pointer over the query explorer button and click Queries.
3. In the Insertable Objects pane, drag one of the following objects to the work area.
4. In the Properties pane, specify the properties you want.
   For example, if you added a join, double-click the Join Relationships property to define the join.
5. Double-click a query.
6. In the Insertable Objects pane, on the source tab, drag data items that you want in the query to the Data Items pane.
Tip: You can add data items to the query that you do not want to appear in the layout. For example, if you want to filter on Product line code but you want users to see Product line in the layout, you must add both data items to the query.

7. If you want to create a new data item in the query, in the Insertable Objects pane, on the toolbox tab, drag Data Item to the Data Item pane.

8. If you want to add a filter, in the Insertable Objects pane, on the toolbox tab, drag Filter to the Detail Filters pane or to the Summary Filters pane, and define the filter expression (p. 105).

   Tip: You can also create a filter by dragging a data item from the source tab to the one of the filters panes and then completing the filter expression. If you are working with a dimensional data source, you can quickly filter data by dragging a member instead of the level to which the member belongs. For example, dragging the member 2006 from the Years level will filter data for the year 2006. This method is quicker than dragging the Years level and then completing the filter expression to specify to show data only for the year 2006.

When adding queries to the report

- right-click the work area and click Show Package Sources to see the queries that use data items from a package
- right-click the work area and click Expand References to see the relationships that exist between queries in the report, which is useful when you are creating complex queries

Create a Union Query

Create a union query to combine two or more queries into one result set.

You can combine queries that use different data sources. For example, you can combine a query that returns data from a dimensional data source with a query that returns data from a relational data source.

To combine two queries, the following conditions must be met:

- The two queries must have the same number of data items.
- The data types of the data items must be compatible and the data items must appear in the same order.
  - For numeric data types, integer, float, double, and decimal are compatible.
  - For string data types, char, varChar, and longVarChar are compatible.
  - For binary data types, binary and varBinary are compatible.
  - Date data types must match perfectly.

Steps

1. Open the report that you want.

2. Pause the pointer over the query explorer button and click Queries.

3. In the Insertable Objects pane, do the following:
   - Drag Query to the work area.
   - Drag Union, Intersect, or Except to the right of the query.
     Two drop zones appear to the right of the operator.
   - Drag a Query object to each drop zone.
     Two queries are created in the work area and a shortcut to each query appears in the drop zones.

4. Double-click each query that makes up the union query and add the data items that you want.

5. On the toolbar, press the back button to return to the Queries work area.

6. Click the set operator that you added in step 3.

7. In the Properties pane, click the Duplicates property and choose whether you want to remove or preserve duplicate rows.

8. Double-click the Projection List property.
   The projection list shows the list of projected data items for the set operation.
9. If you want Report Studio to automatically produce the list of projected data items, click **Automatically generated**. Report Studio generates the projection list using only one of the two queries being unioned.

10. If you want to add, delete, move, or rename data items in the projection list, click **Manual** and make the changes you want.

11. Click **OK**.

12. Double-click the union query.

13. In the **Insertable Objects** pane, on the source tab, drag the data items that you want to add to the query to the **Data Items** pane.

The union query is complete. You can now link it to a data container in the layout.

**Example - Create a Two-column List Report for Three Data Items**

You are a report author at the Great Outdoors Company, which sells sporting equipment. You are requested to create a list report that shows revenue for all product lines and order methods. However, you want the product lines and order methods to appear in a single column. To create this report, you use a union query to join the Product line and Order method data items.

**Steps**

1. In the Cognos Connection **Welcome** page, click the **Public Folders** link.
2. Click the **GO Sales and Retailers** link, and then click the **Report Studio** link in the upper-right corner of the page.
3. In the **Welcome** dialog box, click **Create a new report or template**.
4. In the **New** dialog box, click **Blank** and click **OK**.
5. Pause the pointer over the query explorer button and click **Queries**.
6. In the **Insertable Objects** pane, do the following:
   - Drag **Query** to the work area.
   - Drag **Union** to the right of the query.
     Two drop zones appear to the right of the operator.
   - Drag a **Query** object to each drop zone.
     **Query2** and **Query3** are created in the work area, and a shortcut to each query appears in the drop zones.
7. Double-click **Query2**.
8. In the **Insertable Objects** pane, on the source tab, drag the following data items to the **Data Items** pane:
   - from the **Products** folder, **Product line**
   - from the **Orders** folder, **Revenue**
9. In the **Insertable Objects** pane, on the toolbox tab, drag **Data Item** to the **Data Items** pane.
   The data item will be used to sort product lines and order methods in the report.
10. In the **Expression Definition** box, type 'A' and click **OK**.
11. In the **Properties** pane, click the **Name** property, delete the default name, and type **Sort key**
12. On the toolbar, press the back button to return to the Queries work area.
13. Double-click **Query3**.
14. In the **Insertable Objects** pane, on the source tab, drag the following data items to the **Data Items** pane:
   - **Order method**
   - **Revenue**
   Tip: You can find these items in the **Orders** folder.
15. Repeat steps 9 to 11 to create a Sort key data item in Query3 with 'B' as its definition.
16. On the toolbar, press the back button to return to the Queries work area.
17. Click the **Union** operator.
18. Double-click the **Projection List** property.
   The **Product line** item in the projection list contains both product lines and order methods.

19. Click **Manual**.

20. Click **Product line** and then click the edit button.

21. In the **Edit** box, type the following after **Product line**:
   & Order method

22. Click **OK** twice.

23. Double-click **Query1**.

24. In the **Insertable Objects** pane, on the source tab, drag the following data items to the **Data Items** pane:
   - Product line & Order method
   - Revenue
   - Sort key

25. With **Sort key** selected, in the **Properties** pane, click the **Pre-Sort** property and click **Sort ascending**.
   When you run the report, all product lines will appear first, followed by all order methods.

26. Pause the pointer over the page explorer button and click **Page1**.

27. In the **Insertable Objects** pane, on the toolbox tab, drag **List** to the work area.

28. Click the list.

29. Click the select ancestor button in the title bar of the **Properties** pane and click **List**.

30. Click the **Query property** and click **Query1**.
    The list is linked to the union query.

31. Double-click the **Properties** property.

32. Select the **Sort key** check box and click **OK**.
    Since the Sort key data item does not appear in the list, you must make it a property of the list
    before it can sort product lines and order methods.

33. In the **Insertable Objects** pane, on the data items tab, drag the following items from **Query1** to
    the list:
    - Product line & Order method
    - Revenue

34. Run the report.

A list report with two columns is produced. All product lines and order methods appear in the
first column.

<table>
<thead>
<tr>
<th>Product line &amp; Order method</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camping Equipment</td>
<td>$96,713,990.90</td>
</tr>
<tr>
<td>Golf Equipment</td>
<td>$25,975,566.56</td>
</tr>
<tr>
<td>Hunting Equipment</td>
<td>$10,675,350.60</td>
</tr>
<tr>
<td>Outdoor Protection</td>
<td>$3,171,114.92</td>
</tr>
<tr>
<td>Personal Accessories</td>
<td>$31,894,466.96</td>
</tr>
<tr>
<td>Email</td>
<td>$27,075,569.66</td>
</tr>
<tr>
<td>Fax</td>
<td>$5,425,131.70</td>
</tr>
<tr>
<td>Mail</td>
<td>$5,207,207.26</td>
</tr>
<tr>
<td>Sales fist</td>
<td>$46,711,140.52</td>
</tr>
<tr>
<td>Spool</td>
<td>$5,323,930.16</td>
</tr>
<tr>
<td>Telephone</td>
<td>$44,223,899.10</td>
</tr>
<tr>
<td>Web</td>
<td>$57,826,733.48</td>
</tr>
</tbody>
</table>

### Create a Join Relationship

You can create a join relationship to join two queries.

In general, join relationships should be created in the Framework Manager model. Create a join
relationship in Report Studio if what you are trying to do cannot be modeled in Framework Manager.
Steps

1. Open the report that you want.
2. Pause the pointer over the query explorer button and click Queries.
3. In the Insertable Objects pane, do the following:
   - Drag Query to the work area.
   - Drag Join to the right of the query.
   - Two drop zones appear to the right of the operator.
   - Drag a Query object to each drop zone.
   - Two queries are created in the work area, and a shortcut to each query appears in the drop zones.
4. Double-click each query that makes up the join query and add the data items that you want.
5. On the toolbar, press the back button to return to the Queries work area.
6. Click Join.
7. In the Properties pane, double-click the Join Relationships property.
8. Click New Link.
9. Click a data item in the left query, and then click a data item in the right query to create a link.
10. For each query, click Cardinality, and then click the cardinality that you want to use.
11. Click Operator, and then click the operator that you want to use.
12. To convert the join relationship to an expression, click the Convert to expression button.
   
   Convert the join relationship to an expression to make changes to the join definition.
   
   Note: After you convert the relationship to an expression, you cannot change it back to a relationship.
13. Click OK.
14. Double-click the join query.
15. In the Insertable Objects pane, on the source tab, drag the data items that you want to add to the Data Items pane.

The join query is complete. You can now link it to a data container in the layout.

Add Dimension Information to a Query

Add dimension information to a query to obtain the results that you want. Add dimension information if any of the following apply:

- There is no dimension information available in the data source.
  
  For example, the data source contains flat data that you want to model dimensionally.
- You want to override the dimension information in the data source.
- You want to extend or restrict dimension information in the data source.

Dimension information is not intended to define the presentation of information, but to help query planning. It can be considered as a form of query hint.

If you do not add dimension information and the data source contains dimensions, then the dimension structure of the data source is used. If the data source contains no dimensions, Cognos 8 creates a default dimension structure.

Steps

1. Pause the pointer over the query explorer button and click the query you want.
2. In the Properties pane, click the Override Dimension Info property and click Yes.
   
   The Dimension Info tab appears in the work area.
3. Click the Dimension Info tab.
4. If you want to create a dimension from an existing data item, in the Insertable Objects pane, on the source tab, drag the data item to the Dimensions pane.

   Report Studio automatically generates the entire dimension.
5. If you want to create a new dimension, in the Insertable Objects pane, on the toolbox tab, drag Dimension to the Dimensions pane, and then build it by adding the objects you want:
   • To create a level, drag Level.
   • To create a level hierarchy, drag Level Hierarchy.
   • To create a member hierarchy, drag Member Hierarchy.
   For information about these objects, see "Working with Dimensional Data" (p. 31).

6. In Insertable Objects pane, on the source tab, drag the data items you want to the objects you added in the previous step.
   For example, if you created a level, define a key by dragging a data item to the Keys folder.

7. If you want to create a fact, in the Insertable Objects pane, on the source tab, drag the data item you want to the Facts pane.

Example - Create a Crosstab Report that Shows Empty Rows

You are a report author at the Great Outdoors Company, which sells sporting equipment. You are requested to create a crosstab report that shows the total revenue per year for each product line, broken down by order method. By default, if no revenue was produced for a particular product line in a specific year, no row appears in the crosstab for that product line and year. You override the dimension information of the crosstab so that empty rows appear in the report.

Steps
1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper-right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click Crosstab and click OK.
5. In the Insertable Objects pane, on the source tab, drag the following data items to the crosstab:
   • Product line as rows
   • Order year as nested rows
   • Order method as columns
   • Revenue as the measure
   Tip: You can find these items in the Products and Orders folders.
6. Right-click the crosstab and click Go to Query.
7. In the Properties pane, click the Override Dimension Info property and click Yes.
   The Dimension Info tab appears at the bottom of the work area.
8. Click the Dimension Info tab.
9. In the Insertable Objects pane, on the source tab, drag the following items to the Dimensions pane:
   • Product line
   • Order year
   Product line and Order year become separate dimensions in the query.
10. Pause the pointer over the page explorer button and click Page1.
11. Click Order year.
12. In the Properties pane, double-click the Sort property.
13. In the Data Items box, drag Order year to the Sort List box and click OK.
14. Run the report.
   All order years appear for all product lines, even if no revenue was produced.
Chapter 4: Working with Data

Reference Package Items in Child Queries

When you create a child query in Report Studio, you can only reference items from its parent or from other queries. For example, if you add a filter to a child query, the only items that you can insert into the expression are items that exist in other queries defined in the report. If you want to add an item from the package, you must unlink the child query from its parent.

Steps
1. Open the report that you want.
2. Pause the pointer over the query explorer button and click Queries.
3. Unlink the child query from its parent by selecting the parent query shortcut to the right of the child query and clicking the delete button.
4. Double-click the child query.
   Package items are now available on the source tab of the Insertable Objects pane.
5. Add the package items you want.
   For example, if you want to create a detail filter that references a package item, drag the filter object from the toolbox tab to the Detail Filters pane, and then add the items you want in the Expression Definition box.
6. Click the up arrow in the toolbar to return to the queries work area.
7. Recreate the link between the child query and the parent query by dragging the parent query to the right of the child query.
8. If necessary, double-click the child query to complete it.
   For example, if you created a filter, you may need to complete the filter expression.

Working with SQL or MDX

For each query in a report, you can work with the SQL or MDX that is executed when you run a report. You can
- view the SQL or MDX
- edit the SQL or MDX
- build a report using your own SQL or MDX
- choose the data source

When working with a relational data source, the SQL that is produced by Report Studio depends on the report output selected.

View the SQL or MDX

View the SQL or MDX to see what is passed to the database when you run a report.
Steps
1. Open the report that you want.
2. If you want to view the SQL or MDX for the entire report, from the Tools menu, click Show Generated SQL/MDX.
3. Pause the pointer over the query explorer button and click the query you want.
4. In the Properties pane, double-click the Generated SQL/MDX property.

The SQL or MDX for the query appears in the Generated SQL/MDX dialog box. For SQL, you can choose to view native SQL, which is the SQL that is passed to the database when you execute the query, or Cognos SQL, which is a generic form of SQL that Report Studio uses. Cognos SQL is converted to native SQL before the query is executed.

Edit the SQL or MDX

You can edit the SQL or MDX for a query to suit your particular needs. For example, you may want to edit the SQL or MDX to improve performance or to troubleshoot problems.

If you did not originally build the query using SQL or MDX, you must convert the query to SQL or MDX before you can make changes. Converting a query to SQL or MDX is an irreversible process.

Steps
1. Open the report that you want.
2. Pause the pointer over the query explorer button and click the query you want.
3. In the Properties pane, double-click the Generated SQL/MDX property.
4. Click Convert.
5. Make the changes you want.
   - If you are working with MDX, you must be aware of the MDX syntax that Report Studio supports.
6. Click Validate to check for errors.
7. Click OK.

Build a Report Using Your Own SQL or MDX

You can build a report by adding SQL or MDX from an external source, such as another report.

If you are working with MDX, you must be aware of the MDX syntax that Report Studio supports.

Steps
1. From the File menu, click New.
2. Click Blank and click OK.
3. Pause the pointer over the query explorer button and click Queries.
4. In the Insertable Objects pane, drag Query to the work area.
5. In the Insertable Objects pane, do one of the following:
   - If you want to build a SQL query, drag SQL to the right of the query.
   - If you want to build an MDX query, drag MDX to the right of the query.
   - Tip: You can drag SQL or MDX anywhere in the work area and Report Studio will automatically create a query.
6. In the Properties pane, double-click the Data Source property to choose the data source.
7. Click the data source you want and click OK.
8. If required, in the Catalog property, type the name of the catalog that you want to use.
9. Double-click the SQL or MDX property.
10. Type the SQL or MDX you want to use.
11. Click Validate to check for errors.
12. Click OK.
13. Double-click the query.
If the SQL or MDX is valid, data items defined in the SQL or MDX appear in the **Data Items** pane.

14. Pause the pointer over the page explorer button and click a report page.

15. In the **Insertable Objects** pane, on the toolbox tab, drag the report type (p. 43) you want to create to the work area.
   For example, drag a list, crosstab, chart, or repeater.

16. Click the data container.

17. In the **Properties** pane, click the select ancestor button and then click the container you just created.
   For example, if you created a list, click **List**.

18. Click the **Query** property and click the query you want to use for the report type.

19. In the **Insertable Objects** pane, on the data items tab, drag the items you want from the query you chose in the previous step to the data container.

**Choose the Data Source**

If you converted a query to SQL or MDX or created a query by adding your own SQL or MDX, you must choose the data source against which you want to execute the query.

**Steps**

1. Open the report that you want.
2. Pause the pointer over the query explorer button and click **Queries**.
3. Click the **Data Source** object of the query for which you want to choose the data source.
4. In the **Properties** pane, double-click the **Data Source** property.
5. Click the data source you want and click **OK**.

**First-Rows Optimization**

The SQL produced by Report Studio depends on the report format you choose. For example, if you specify HTML format, first-rows optimization is requested. All-rows is requested if you specify PDF.

It is important for database administrators and programmers to remember that Report Studio does not always use first-rows optimization. If you assume first-rows optimization is always requested, this can cause the RDBMS optimizer to process the query differently than you expect.

**Supported MDX Syntax**

If you are working with MDX, you must be aware of the syntax that Report Studio supports. Report Studio supports the MDX grammar as specified in Microsoft's Data Access SDK version 2.8, with the following exceptions.

Report Studio does not support the following MDX functions. This is a partial list and applies only when you are working with the following data sources:
- cubes
- DB2 OLAP
- Cognos Consolidation
- Cognos Contributor

For these data sources, Cognos 8 uses a variation of the MS Analysis Services syntax.

<table>
<thead>
<tr>
<th>Function/Expression</th>
<th>Report Studio Support</th>
<th>MS Analysis Services Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>AllMembers Ignore</td>
<td>SetToArray</td>
<td></td>
</tr>
<tr>
<td>Ascendents Is</td>
<td>SetToStr</td>
<td></td>
</tr>
<tr>
<td>CalculationCurrentPass IsAncestor</td>
<td>StddevP</td>
<td></td>
</tr>
<tr>
<td>CalculationPassValue IsGeneration</td>
<td>StddevP</td>
<td></td>
</tr>
</tbody>
</table>

---

Chapter 4: Working with Data
Add a Query Macro

Add a query macro to allow run time changes to be made to SQL queries. A macro is a fragment of code that you can insert in the Select statement of a query or in an expression. For example, add a macro to insert a new data item containing the user’s name.

You can also add query macros to the Framework Manager model. For more information, including examples, see the Framework Manager User Guide.

Support for query macros in Report Studio includes the same capabilities as macros used in Framework Manager, including support for parameter maps defined within the Framework Manager model. However, Report Studio query macros do not extend to the layout. Therefore, when making changes to the query using macros, you must bear in mind the side-effects on the layout. For example, if a macro removes a column from the query that the layout refers to, a run-time error will occur.

Steps
1. Open the report that you want.
2. Pause the pointer over the query explorer button and click Queries.
3. If the query to which you want to add a macro was built by using your own SQL, do the following:
   - Click the SQL object that is linked to the query.
   - In the Properties pane, double-click the SQL property.
   - In the SQL dialog box, type the macro.
   - Click OK.
4. If the query to which you want to add a macro was not built by using your own SQL, do the following:
   - Click the query.
   - In the Properties pane, double-click the Generated SQL/MDX property.
   - In the Generated SQL/MDX dialog box, click Convert.
   - In the SQL dialog box, type the macro.

### Table of CallMacro Functions

<table>
<thead>
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<th>Correlation</th>
<th>Covariance</th>
<th>CovarianceN</th>
<th>Current</th>
<th>DataMember</th>
<th>DrillDownLevel</th>
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<th>DrillDownLevelTop</th>
<th>DrillDownMember</th>
<th>DrillDownMemberBottom</th>
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<th>DrillupLevel</th>
<th>DrillupMember</th>
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<tbody>
<tr>
<td>IsLeaf</td>
<td>IsSibling</td>
<td>LinkMember</td>
<td>LinRegIntercept</td>
<td>LinRegPoint</td>
<td>LinRegR2</td>
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<td>LinRegSlope</td>
<td>LinRegVariance</td>
<td>LookupCube</td>
<td>MemberToStr</td>
<td>Name</td>
<td>NameToStr</td>
<td>MemberToStr</td>
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<td>StripCalculatedMembers</td>
<td>StrToMember</td>
<td>StrToSet</td>
<td>StrToTuple</td>
<td>StrToValue</td>
<td>ToggleDrillState</td>
<td>TupleToStr</td>
<td>UniqueName</td>
<td>UserName</td>
<td>ValidMeasure</td>
<td>Variance</td>
<td>VarP</td>
<td>VisualTotals</td>
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<td>StrToSet</td>
<td>StrToTuple</td>
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<td>TupleToStr</td>
<td>UniqueName</td>
<td>UserName</td>
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<td>StrToValue</td>
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<td>LinRegSlope</td>
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<td>ToggleDrillState</td>
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<td>UserName</td>
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<td>VarP</td>
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</tr>
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<td>LinRegPoint</td>
<td>LinRegPoint</td>
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<td>UserName</td>
<td>ValidMeasure</td>
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<td>VarP</td>
<td>VisualTotals</td>
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<td>VarP</td>
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<td>MemberToStr</td>
<td>MemberToStr</td>
<td>ToggleDrillState</td>
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<td>UserName</td>
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</tr>
<tr>
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<td>Name</td>
<td>Name</td>
<td>Name</td>
<td>Name</td>
<td>ToggleDrillState</td>
<td>TupleToStr</td>
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<td>UserName</td>
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<td></td>
</tr>
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<td>NameToSet</td>
<td>NameToSet</td>
<td>NameToSet</td>
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<tr>
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<td>NonEmptyCrossjoin</td>
<td>NonEmptyCrossjoin</td>
<td>NonEmptyCrossjoin</td>
<td>ToggleDrillState</td>
<td>TupleToStr</td>
<td>UniqueName</td>
<td>UserName</td>
<td>ValidMeasure</td>
<td>Variance</td>
<td>VarP</td>
<td>VisualTotals</td>
<td></td>
</tr>
<tr>
<td>DrillupMember</td>
<td>Predict</td>
<td>Predict</td>
<td>Predict</td>
<td>Predict</td>
<td>ToggleDrillState</td>
<td>TupleToStr</td>
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<td>UserName</td>
<td>ValidMeasure</td>
<td>Variance</td>
<td>VarP</td>
<td>VisualTotals</td>
<td></td>
</tr>
</tbody>
</table>
Creating Prompts Using Query Macros

You can create mandatory and optional prompts in reports using query macros. Use the prompt macro functions `prompt` and `promptmany` to create single-value and multiple-value prompts. You can use prompt macro functions when working with a relational data source or a Dimensionally Modeled Relational (DMR) data source.

The `prompt` and `promptmany` functions have the following mandatory and optional parameters. All argument values must be specified as strings.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name (mandatory)</td>
<td>Name of the prompt. Can also refer to the name of a parameter on a user-created prompt page, in which case the user-created prompt page appears when the report is run instead of the default prompt page that the macro would generate.</td>
</tr>
<tr>
<td>Datatype (optional)</td>
<td>Prompt value data type. The default value is string. Prompt values are validated. In the case of strings, the provided value is enclosed in single quotation marks and embedded single quotation marks are doubled. For information about which data types are supported, visit the Cognos Global Customer Services Web site (<a href="http://support.cognos.com">http://support.cognos.com</a>).</td>
</tr>
<tr>
<td>DefaultText (optional)</td>
<td>Text to be used by default. If a value is specified, the prompt is optional. If you use a space and no values are provided in the Prompt Value dialog box, a Where clause is usually not generated. If you use text and no values are provided in the Prompt Value dialog box, a Where clause is usually generated using the default value. Ensure that the text you provide results in a valid SQL statement.</td>
</tr>
<tr>
<td>Text (optional)</td>
<td>Text that precedes any user-provided values, such as, 'and column1 ='.</td>
</tr>
<tr>
<td>QueryItem (optional)</td>
<td>The prompt engine can take advantage of the Prompt Info properties of the query item. Descriptive information can be shown although the prompt value is a code.</td>
</tr>
<tr>
<td>TextFollowing (optional)</td>
<td>The closing parenthesis which is used most often for the promptmany function. It is also useful when the prompt is optional and is followed by hardcoded filters in the SQL statement.</td>
</tr>
</tbody>
</table>

Example - Select a Country Prompt

You are a report author at the Great Outdoors Company, which sells sporting equipment. You are requested to create a report that will prompt users to choose the country for which they want to see data.

The following code shows how you can use macros to create a prompt:

```
select
    COUNTRY_MULTILINGUAL.COUNTRY_CODE
as COUNTRY_CODE,
    COUNTRY_MULTILINGUAL.COUNTRY as COUNTRY,
```
COUNTRY_MULTILINGUAL."LANGUAGE" as LANGUAGE1,
COUNTRY_MULTILINGUAL.CURRENCY_NAME
as CURRENCY_NAME
from
gosales.gosales.dbo.COUNTRY_MULTILINGUAL COUNTRY_MULTILINGUAL
where COUNTRY_MULTILINGUAL.COUNTRY = #prompt('CountryName')#

**Notes**

- Because the `<Datatype>` argument is not specified, valid prompt values must be strings, which is correct in this case.
- Because the `<DefaultText>` argument is not specified, the `CountryName` prompt is a required prompt.
Chapter 5: Working with Existing Reports

After you have created a report, you can make changes or enhancements, such as setting up the report for bursting.

Before you modify an existing report, ensure that you have the proper security permissions. For more information, see the *Administration and Security Guide*.

You can

- open and save reports locally
- open a report from the clipboard
- remove upgrade messages
- open files from other Studios
- manage changes in the package
- add multiple items to a single column
- burst a report
- define conditions
- set up drill-through access
- drill-up/drill-down in the same report
- create a master-detail relationship

**Open and Save a Report Locally**

By default, the reports you create are stored on the Cognos 8 server. You can, however, open and save reports on your computer. This is useful if you want to send a report to a report author that is working in a different environment, or you want to save the report to a source code controlled directory on a local network or drive.

**Steps**

1. Obtain the LFA.dll from your Cognos 8 administrator.
   - The DLL is located in the bin directory where Cognos 8 is installed.
2. Open a command prompt window.
3. Register the LFA.dll file by typing
   `regsvr32 LFA.dll`
4. In Internet Explorer, set your computer and the Cognos 8 server as trusted sites:
   - From the Tools menu, click Internet Options.
   - On the Security tab, click Trusted sites.
   - Click the Sites button.
   - In the Add this Web site to the zone box, type http://localhost and click Add.
     **Tip:** If the Cognos 8 server is not on the same computer as the browser, type http://<computer name> instead.
   - Repeat the above step for http://<Cognos 8 servername>.
   - Clear the Require server verification (https:) for all sites in this zone check box.
   - Click OK twice.
5. In Report Studio, from the Tools menu, click Options.
6. Select the Allow local file access check box and click OK.
   - The menu items (Local) Open and (Local) Save As appear in the File menu.

You can now open and save reports on your computer. The first time you try to open or save a report locally, Internet Explorer asks you whether you want to allow an ActiveX control on the page to interact with other parts of the page. Click Yes to continue.

Open a Report from the Clipboard

You can open a report specification (p. 41) that was previously copied to the clipboard (Tools menu, Copy To Clipboard). This is useful for importing an XML report specification from outside the Cognos 8 environment.

Although Report Studio attempts to validate the report specification, it is your responsibility to ensure that it is correct. For more information, see the Cognos 8 SDK Developer Guide.

Steps
• From the Tools menu, click Open Report From Clipboard.

Remove Upgrade Messages

When you open a report that was created in a previous version of Report Studio, any problems detected during the upgrade process appear in the Upgrade Information dialog box, and you cannot run the report. After you fix the problems detected, you must remove the upgrade messages before you can run the report.

Steps
1. Open the report that you want.
2. From the File menu, click Upgrade Information.
3. Select the Clear upgrade issues (required for report to run) check box.
4. Click OK.

You can now run the report.

Open Files from Other Studios

You can open reports, templates, or analyses that were created in Query Studio or Analysis Studio in Report Studio. All the capabilities of Report Studio are available to you, to change the formatting, layout, calculations, and queries.

You can also open a report, template, or analysis in Report Studio from Cognos Connection with the Open with Report Studio action.

Steps
1. From the File menu, click Open.
2. Click the report, template or analysis that you want.
3. Click Open.

Note: If you make and save changes to a Query Studio report or an Analysis Studio analysis in Report Studio, the report or analysis can no longer be opened in Query Studio and Analysis Studio.

Components of an Analysis Studio Query Specification

Analysis Studio defines each group of rows and columns as a set. When an analysis is imported into Report Studio, the report will have one query which processes all the sets found on the crosstab. Each set is defined by 18 data items which segment and summarize the base set definition. In order to maintain reports converted from Analysis Studio, you must understand what each of these items represent and how they relate to each other.
The data items for a set specify the following:

- The set definition.
- The set segments, including which members were excluded and hidden individually.
- The filter rules for defining which members are to be retrieved.
- The calculations for Subtotal (N items), More & Hidden, Subtotal (included), Subtotal (excluded), and the total.

For more information about the subtotals, see the Analysis Studio User Guide.

- Which subtotals should appear.
- Any user-defined calculations.

<table>
<thead>
<tr>
<th>Data item</th>
<th>Definition</th>
<th>Dependencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;measure name&gt;</td>
<td>Identifies which measure is to be the default measure for the crosstab or chart. May be empty if no default measure is specified.</td>
<td></td>
</tr>
</tbody>
</table>

Set Definitions

- <set name> (base) Defines the set of members to be used for sorting, filtering and summary operations. This data item provides a generic reference for all other data items and may reference one of the other set definitions.

- <set name> (level) Identifies the level for a level-based set.

- <set name> (list) Defines the list of members in a selection-based set.

- <set name> (depth N) Defines the set of members at N, number of levels down.

- <set name> (named set) References a predefined set.

Set Segment Definitions

- <set definition> (hidden list) Lists the members manually hidden using the Hide command in Analysis Studio. This set appears when the user tries to unhide a member.
### Data item

<table>
<thead>
<tr>
<th>Data item</th>
<th>Definition</th>
<th>Dependencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;set definition&gt;</code> (included set)</td>
<td>Lists the set of members after filters are applied and hidden items are excluded, but before the More limit is applied. Sort or order operations, if any, are defined in this data item.</td>
<td><code>&lt;set definition&gt;</code> (hidden list)</td>
</tr>
<tr>
<td><code>&lt;set definition&gt;</code> (visible items set)</td>
<td>Limits the set to show the number of members according to the More limit, with a small tolerance. The tolerance allows for showing the last two members if that is all that remained in the More portion of the set. The choice of visible members can be based on a sort order.</td>
<td><code>&lt;set definition&gt;</code> (included set)</td>
</tr>
<tr>
<td><code>&lt;set definition&gt;</code> (excluded list)</td>
<td>Identifies those members that were manually excluded from the analysis. If no members were manually excluded, the expression defines an emptySet(). This set appears when the user tries to remove a member from the Excluded items list in the Properties pane.</td>
<td><code>&lt;set definition&gt;</code></td>
</tr>
</tbody>
</table>

### Filters

<table>
<thead>
<tr>
<th>Data item</th>
<th>Definition</th>
<th>Dependencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;set definition&gt;</code> (filter rules)</td>
<td>Specifies the user-defined filter rules to reduce the set definition using operators such as greater than or less than, based on measures, calculations or attributes.</td>
<td><code>&lt;set definition&gt;</code></td>
</tr>
<tr>
<td><code>&lt;set definition&gt;</code> (excluded filters)</td>
<td>Removes those members that were manually excluded from the results after applying the user-defined rules.</td>
<td><code>&lt;set definition&gt;</code> (excluded list), <code>&lt;set definition&gt;</code> (filter rules)</td>
</tr>
<tr>
<td><code>&lt;set definition&gt;</code> (filter top bottom)</td>
<td>Focuses on the members based on top / bottom / first n, where n can be a count or a percentile. For more information about Top/Bottom filters, see the Analysis Studio User Guide.</td>
<td><code>&lt;set definition&gt;</code> (excluded filters) and totals for sets on the opposite axis</td>
</tr>
</tbody>
</table>

### Subtotals and Related Conditions

<table>
<thead>
<tr>
<th>Data item</th>
<th>Definition</th>
<th>Dependencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;set definition&gt;</code> (subtotal)</td>
<td>Aggregates the visible items shown for the set.</td>
<td><code>&lt;set definition&gt;</code> (visible items set)</td>
</tr>
<tr>
<td><code>&lt;set definition&gt;</code> (subtotal display)</td>
<td>Shows the subtotal if the number of included items is greater than the number of visible items.</td>
<td><code>&lt;set definition&gt;</code> (visible items set), <code>&lt;set definition&gt;</code> (included set), <code>&lt;set definition&gt;</code> (subtotal)</td>
</tr>
<tr>
<td><code>&lt;set definition&gt;</code> (more and hidden subtotal)</td>
<td>Calculates the More &amp; hidden subtotal by subtracting the aggregation of the included members from the aggregation of those members manually hidden or hidden by exceeding the maximum display limit. Not available for selection-based sets.</td>
<td><code>&lt;set definition&gt;</code> (included set), <code>&lt;set definition&gt;</code> (visible items set), <code>&lt;set definition&gt;</code></td>
</tr>
<tr>
<td><code>&lt;set definition&gt;</code> (more and hidden subtotal as set)</td>
<td>Converts the More &amp; hidden subtotal member to a set for use in set operations.</td>
<td><code>&lt;set definition&gt;</code> (more and hidden subtotal)</td>
</tr>
</tbody>
</table>
Chapter 5: Working with Existing Reports

Managing Changes in the Package

If changes were made to the package used to create a report, the report must be updated. When you open a report, Report Studio automatically checks to see if the package has changed. If it has, a message appears indicating that the report will be updated to the latest version of the package. However, you may need to make additional changes to the report if
- the namespace name or query subject and data item names in the package have changed
- the name of the package has changed

Update Name References

If the namespace name or query subject and data item names in the package have changed, you must update reports created with the package to reflect the change.

The names of data items in a report are a concatenation of the namespace name, query subject name, and the data item name. For example, if you add Order number from the GO Sales and Retailers sample package to a filter expression, you will see 
\{gosalles_goretailers\}.\{Orders\}.\{Order number\} in the expression. Similarly, package filter names are a concatenation of the namespace name and the filter name.

<table>
<thead>
<tr>
<th>Data item</th>
<th>Definition</th>
<th>Dependencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;set definition&gt; (more and hidden subtotal as member)</td>
<td>Generically references More &amp; hidden subtotal.</td>
<td>&lt;set definition&gt; (more and hidden subtotal)</td>
</tr>
<tr>
<td>&lt;set definition&gt; (more and hidden subtotal display)</td>
<td>Shows the More &amp; hidden subtotal if the number of items hidden or clipped is greater than zero.</td>
<td>&lt;set definition&gt; (more and hidden subtotal)</td>
</tr>
<tr>
<td>&lt;set definition&gt; (included subtotal)</td>
<td>Calculates the value for Subtotal (included). For selection-based sets, this data item references the summary data item for the set.</td>
<td>&lt;set definition&gt; (included set)</td>
</tr>
<tr>
<td>&lt;set definition&gt; (included subtotal display)</td>
<td>Shows Subtotal (included) if any members passed the filter criteria.</td>
<td>&lt;set definition&gt; (included set)</td>
</tr>
<tr>
<td>&lt;set definition&gt; (excluded subtotal)</td>
<td>Calculates the value for Subtotal (excluded). This data item is not available for selection-based sets.</td>
<td>&lt;set definition&gt; (excluded subtotal), &lt;set definition&gt; (total), &lt;set definition&gt; (included subtotal)</td>
</tr>
<tr>
<td>&lt;set definition&gt; (excluded subtotal display)</td>
<td>Shows Subtotal (excluded) if the number of members in the filtered set is less than the base set. The filter rule is filtering out something.</td>
<td>&lt;set definition&gt; (excluded subtotal), &lt;set definition&gt; (total)</td>
</tr>
<tr>
<td>&lt;set definition&gt; (total)</td>
<td>Identifies the total for the set and is calculated directly from the data store. The expression used to calculate the summary depends on the set type. Details-based set: The selected member. Level-based and depth-based sets: The root member for the hierarchy. Selection-based set: The aggregate, typically the sum, of the selected members.</td>
<td>&lt;set definition&gt;</td>
</tr>
</tbody>
</table>
Chapter 5: Working with Existing Reports

**Steps**
1. Open the report that you want.
2. To update a data item name reference:
   - Click the data item.
   - In the Properties pane, double-click the Expression property.
   - In the Expression Definition box, update the data item name reference, and click OK.
3. To update a package filter name reference:
   - From the Data menu, click Filters.
   - Double-click the package filter.
   - In the Expression Definition box, update the namespace name, and click OK.

**Change the Package Connection**

If the name of the package used to create a report has changed, change the package connection to update the report.

At the same time, you can also change the authoring language for the report.

**Steps**
1. Open the report that you want.
2. From the File menu, click Report Package.
3. In the Package box, click the package to which you want to link the report.
4. If you want to change the authoring language, in the Language box, click a different choice.
   You may need to update the report to reflect the change. For example, any filter expressions in the report must be modified to reflect the syntax rules of the new language.
5. Click OK.
   If errors are found, the Validation Errors dialog box appears, showing what elements must be updated to reflect the package change.
6. Click Close.
7. Make any required changes in the report to support the new package.
   For example, you may need to link the data items in the report to the new package.
   **Tip:** You can use Query Explorer (p. 127) to make all the changes.

**Add Multiple Items to a Single Column**

You can add multiple items to a single column to condense a report. For example, you have a list report that contains many columns. You can reduce the number of columns in the list by putting related information in a single column.

**Steps**
1. Open the report that you want.
2. From the Structure menu, click Lock Page Objects to unlock the report.
3. In the Insertable Objects pane, drag the items that you want to the column.
   For example, you can add data items from the source tab, or text items from the toolbox tab.

**Example - Create a Report with Multiple Items in One Column**

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a list report showing the name, position, email address, phone number, extension, and fax number for each sales representative in each city, organized by country. To reduce the number of columns in the list, you show email addresses, phone numbers, extensions, and fax numbers in a single column.
Steps
1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   - Country
   - City
   - Staff name
   - Position
   - Email
   - Work phone
   - Extension
   - Fax
   Tip: You can find these data items in the Sales branch address and Sales reps folders.
6. Click the Country column, and from the Structure menu, click Section.
7. From the Structure menu, click Lock Page Objects.
   The report is unlocked.
8. Click Country, and in the Properties pane, double-click the Font property.
9. Change the font to Arial Black, 11 pt, and Bold, and click OK.
10. In the Insertable Objects pane, on the toolbox tab, drag Table to the right of the Work phone text item in the Work phone column (not the column title), and create a table that has one column and three rows.
11. Drag the following data items to the table:
   - Email to the first row in the table
   - Work phone to the second row in the table
   - Fax to the third row in the table
12. Drag Extension to the right of Work phone.
13. In the Insertable Objects pane, on the toolbox tab, drag Text Item to the left of each item in the table, and type the following for each item, putting a blank space before and after the text:
   - Email:
   - Work phone:
   - ext:
   - Fax:
14. Press Ctrl+click to select the Extension, Email, and Fax column titles, and click the delete button.
15. Click the Work phone column title.
16. In the Properties pane, click the Source Type property and click Text.
17. Double-click the Text property.
18. Type the following and click OK.
   Contact Information
19. Double-click the text item in the page header, type the following, and click OK.
   Sales Representatives Contact List
20. From the Structure menu, click Lock Page Objects.
   The report is locked.
21. Save the report.
When you run the report, contact information for each sales representative appears in a single column.
Chapter 5: Working with Existing Reports

Bursting Reports

Burst a report to distribute its contents to various recipients. Bursting is the process of running a report once and then dividing the results for distribution to recipients who each view only a subset of the data. For example, salespeople in different regions each need a report showing the sales target for each country. You use burst reports to send each salesperson the information they need. Burst reports can be distributed by email or saved to a directory for viewing in Cognos Connection.

If you want to burst a report against a dimensional data source, see "Creating Burst Reports Using a Dimensional Data Source" (p. 152).

You cannot burst crosstab reports.

To create a burst report, you
- define the burst recipients
- specify burst groups
- set burst options
- enable bursting

Defining Burst Recipients

Define the recipients that will receive data when the report is run. You can distribute burst reports to individual users, groups, roles, distribution lists, and contacts. To define the recipients, you can
- create a calculated field in the report
- create a burst table in the data source

Create a Calculated Field

You can use a calculated field to dynamically create the burst recipients.

Steps

1. Open the report you want.
2. Pause the pointer over the query explorer button and click the query that will produce the data you want to distribute.
3. In the Insertable Objects pane, on the toolbox tab, drag Data Item to the Data Items pane.
4. In the Expression Definition box, type the expression that will generate the list of recipients and click OK.
For example, the following expression builds the list of sales representatives for The Great Outdoors Company. The expression concatenates the first letter of each representative’s first name with their last name.

\[
\text{lower(substring([gosales_goretailers].[Sales reps].[First name],1,1) + [gosales_goretailers].[Sales reps].[Last name])}
\]

5. If you want to give the data item a more meaningful name, in the Properties pane, click the Name property, type a different name, and press the Enter key.

**Creating a Burst Table**

You can create a burst table to specify the list of recipients.

You can also use an existing table as the burst table.

Creating a burst table involves

- creating the table in the source database
- importing the table into a package

**Create the Burst Table in the Source Database**

Create a table in the source database for the list of recipients. The steps you must follow depend on the database system you are using. The burst table must contain the following columns:

- A unique identifier.
  
  **Tip:** Some database systems do not require a unique identifier for each table.

- A recipient column.

- The data item that you want to burst on.

You can also include other columns that provide additional information. For example, if you plan to distribute reports by email, you can add a column that will contain the email address of each recipient.

After you create the table, add the recipients you want to receive the report. You can create a mixed recipients list that includes individual users, groups, roles, contacts, distribution lists, or email addresses. For example, a burst table may contain the following recipients.

<table>
<thead>
<tr>
<th>Recipient example</th>
<th>Recipient type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMID(&quot;*:Canada&quot;)</td>
<td>Group</td>
</tr>
<tr>
<td>CAMID(&quot;*:&quot;)/contact[@name='Silvano Allessori']</td>
<td>Contact</td>
</tr>
<tr>
<td>CAMID(&quot;*:&quot;)/distributionList[@name='European Partners']</td>
<td>Distribution list</td>
</tr>
<tr>
<td>CAMID(&quot;LDAP_Local_ID:u:uid=gbelding,ou=people&quot;)</td>
<td>Authentication provider user or group, where LDAP_Local_ID is the name of an LDAP namespace ID, and people is the name of an organizational unit</td>
</tr>
<tr>
<td><a href="mailto:c8@cognos99.com">c8@cognos99.com</a></td>
<td>Email address</td>
</tr>
</tbody>
</table>

CAMID stands for Cognos Access Manager ID, and it represents an internal search path to the recipients. Specify search paths when you want to save burst reports in a directory. You can obtain the path in Cognos Connection. Open the Set properties page for each recipient, and click the View the search path link. Ensure that you use the proper syntax when adding recipients to the burst table.

In the case of NTLM namespaces, user IDs in the search path use alphanumeric or numeric characters that make them difficult to read. You can use the following alternate search path syntax:

\[
\text{directory/namespace[@name="Local NT"]//account@userName="gbelding"}
\]
where Local NT is the name of a namespace and gbelding is the name of a user. The double slash before the account element indicates that you are searching all accounts under the specified namespace.

**Note:** If you have a mixed recipients list, do not mix email address recipients and alternate path recipients. Because the alternate path syntax contains the @ symbol, it will be mistaken for an email address.

For more information about users, groups, roles, contacts, and distribution lists, see the *Administration and Security Guide*.

**Import the Table**

After you create the burst table in the source database, you must add it to the package that you will use to create the report.

In Framework Manager, do the following:

- Open the package you want.
- Import the table.
- Define the relationship between the burst table and the table containing the data item that you want to burst on.
  
  For example, you are bursting on country code. You define a relationship between country code in the burst table and country code in the Country table.
- Save and publish the package.

For more information about importing tables and creating relationships, see the Framework Manager *User Guide*.

**Specify Burst Groups**

Specify burst groups to set how the report is distributed. Burst groups are defined by a data item that you create in the report or that you add from the burst table.

**Steps**

1. Open the report that you want.
2. Pause the pointer over the query explorer button and click the query that will produce the data you want to distribute.
3. If you are creating a data item, do the following:
   - In the Insertable Objects pane, on the toolbox tab, drag Data Item to the Data Items pane.
   - In the Expression Definition box, type the expression that defines the burst key and click OK.
     
     For example, the following expression builds an email address for each sales representative in The Great Outdoors Company. The expression incorporates the calculated field previously created, named `userID` below, with cognos99.com as the domain name.

       `[userID]+'@cognos99.com`

     **Tip:** To give the data item a more meaningful name, in the Properties pane, click the Name property, type a different name, and press Enter.

4. If you want to specify a burst table column as the data item, do the following:
   - In the Insertable Objects pane, on the source tab, expand the burst table.
   - Drag the data item you want to use to the Data Items pane.
     
     For example, if you are bursting reports by email, drag the data item containing email addresses.

**Set Burst Options**

Set burst options for the report to indicate what data item to burst on and who the recipients are.
Before you set burst options, ensure that the data item you intend to burst on is in the report and grouped. The grouped column will create the appropriate subsets of data. In addition, you must associate the burst key with this level of grouping.

Steps
1. Open the report that you want.
2. From the File menu, click Burst Options.
3. Select the Make report available for bursting check box.
4. Under Burst Groups, in the Query box, click the query that contains the data item you want to burst on.
   Tip: You can choose a query that does not appear in the layout. This is useful when you want to distribute the same report to all burst recipients.
5. In the Label box, click the data item to be used to label each burst report.
6. Click the edit button.
7. In the Data Items box, drag the data item that you want to burst on to the Groups folder and click OK.
   Tip: You can specify the sort order of data within each group by dragging data items to the Sort List folder and then clicking the sort order button.
8. Under Burst Recipient, in the Query box, click the query that contains the data item to be used as the distribution list.
9. In the Data Item box, click the data item that contains the recipients.
10. In the Type box, choose the method to use to burst the report.
    • Click Email addresses to distribute reports by email.
    • Click Directory entries to distribute reports to a directory that recipients can access in Cognos Connection.
       When a recipient logs into Cognos 8, he will see only the report that is specific to him.
    • Click Automatic to let Cognos 8 determine from the data item whether to email reports or send them to a directory.
11. If the report contains two nested data containers, such as a list and a chart, click the ellipsis points (...) beside Master Detail Relationships, and define the relationship between the containers.
    For information about master detail relationships, see "Create a Master-Detail Relationship" (p. 170).
12. Click OK.

Enable Bursting

When the report is ready to be distributed, enable bursting for the report in Cognos Connection.

Steps
1. Locate the report in Cognos Connection.
2. Under Actions, click Run with options.
3. Click the Advanced options link.
4. Select the Burst the report check box.
5. If you are distributing reports by email, select the Send the report by email check box.
   Tip: If you are bursting the report to a directory, you can also send the report by email if the check box is selected. Reports will be emailed if the recipient’s email address is stored in the authentication source you are using, or if it is entered in the recipient’s personal information in Cognos Connection.
6. If the burst report contains a drill-through link (p. 164) to another report and you are distributing the report by email, do the following:
    • Click the Edit the email options link.
    • Select the Include a link to the report check box and click OK.
    If you do not select the check box, the drill-through links in the burst report will not work.
Chapter 5: Working with Existing Reports

7. Click Run to run the report.

Allow a few moments for the report to run. If you are an administrator, you can view all outputs for the report. Under Actions, click View the output versions for this report. When burst recipients log into Cognos Connection or access their email accounts, they will see only the data that is meant for them.

Creating Burst Reports Using a Dimensional Data Source

You can burst a report using a dimensional data source by using burst information stored in the data source. We assume that you do not want to append bursting information to existing dimensional data sources. The solution is to create a relational data source that contains the burst information.

To burst a report using a dimensional data source, do the following:

❑ In Framework Manager, include both the dimensional data source that is the basis for reporting and the relational burst table in the model.

For more information about models, see the Framework Manager User Guide.

❑ In Report Studio, create a master-detail report in which the master query drives the report of interest and the detail query contains the burst information.

The master query must be grouped by a data item that you are bursting on and that has a corresponding data item in the relational burst table.

Author the detail query against the relational burst table. The burst table must contain two columns, the data item corresponding to the one used in the master report for bursting, and the data item that contains the recipient information. The recipient can be an email address or an expression that results in a search path to an object in Content Manager, such as an account, group, role, contact, or distribution list.

For more information about master-detail queries, see "Create a Master-Detail Relationship" (p. 170).

❑ Ensure that the detail query, which must be evaluated by Cognos 8 when the report is executed, is not visible:

  • Place a list that is based on the detail query in a conditional block for which the box type is set to None.
  • Link the master and detail queries using the following expression:

    \[
    \text{[Master Burst Key]} = \text{[Detail Burst Key]}
    \]

When you set the burst options for the report, the master query provides the data items for the burst key, and the detail report provides the data items for the burst recipients.

Example - Burst a Report

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report that lists product sales for each sales representative. The report is to be emailed to each sales representative, but they do not need to see data for everyone, only the data that pertains to them. You create a list report that you burst to each sales representative.

Steps

1. In the Cognos Connection Welcome page, click the Public Folders link.

2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper right corner of the page.

3. In the Welcome dialog box, click Create a new report or template.

4. In the New dialog box, click List and click OK.

5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:

  - Staff name
  - Product line
  - Product type
• Product name
• Quantity
• Revenue

Tip: You can find these data items in the Sales reps, Products, and Orders folders.

6. Group the Staff name, Product line, and Product type columns.
7. Click the Staff name column, and then click the create header button.

Staff name appears as a header in the list. You no longer need to keep the data item as a list column.
8. In the list, click Staff name and click the delete button.
9. Click Revenue, click the aggregate button, and click Total.
10. Pause the pointer over the query explorer button and click Query1.
11. In the Insertable Objects pane, on the source tab, drag Email from the Sales reps folder to the Data Items pane.
12. From the File menu, click Burst Options.
13. Select the Make report available for bursting check box.
15. In the Label box, click Staff name.
16. Click the edit button.
17. In the Data Items box, drag Staff name to the Groups folder and click OK.
18. Under Burst Recipient, in the Query box, click Query1.
19. In the Data Item box, click Email.
20. In the Type box, click Email addresses.
21. Click OK.
22. Save the report.
23. Locate the report in Cognos Connection.
24. Under Actions, click Run with options.
25. Click the Advanced options link.
26. Select the Burst the report check box.
27. Select the Send the report by email check box.
28. Click Run and then click OK.

When sales representatives access their email accounts, they will see a report with only the data that is meant for them.

Defining Conditions

You can define conditions to control what users see when they run a report. With conditions, you can
• add conditional formatting
• add conditional rendering

Add a Variable

Before you can add conditional formatting or conditional rendering to your report, you must add a variable. You can add a variable in the condition explorer or in the Properties pane.

Steps in the Condition Explorer
1. Open the report that you want.
2. Pause the pointer over the condition explorer button and click Variables.
3. In the Insertable Objects pane, drag one of the following variables to the Variables pane:
   • To create a variable that has only two possible values, Yes and No, drag Boolean Variable.
To create a variable whose values are string-based, drag **String Variable**.
To create a variable whose values are different languages, drag **Report Language Variable**.

4. If you created a boolean variable, in the **Expression Definition** box, define the condition and click **OK**.

For example, the following expression returns the value Yes if revenue is less than one million dollars and the value No if revenue is greater than or equal to one million.

\[ \text{Revenue} < 1000000 \]

For information about creating expressions, see "Using the Expression Editor" (p. 223).

5. If you created a string variable, do the following:
   - In the **Expression Definition** box, define the condition and click **OK**.
     
     For example, the following expression returns the value high if revenue is greater than one million dollars and the value low if revenue is less than or equal to one million.
     
     \[
     \text{if } (\text{Revenue}>1000000) \text{ then } ('\text{high}') \text{ else } ('\text{low}')
     \]
     
     For information about creating expressions, see "Using the Expression Editor" (p. 223).
   - Click the add button under the **Values** pane.
   - For each value that the variable can assume, type the name of the value that corresponds with the possible outcomes defined in the expression.
   - Click **OK**.
     
     For example, in the previous expression, you must create two values for the variable, high and low.

     **Tip:** You can create a group by clicking two or more values and then clicking the group values button.

6. If you created a language-specific variable, in the **Languages** dialog box, select the languages you want to support and click **OK**.

   **Tip:** You can create a group by clicking two or more values and then clicking the group values button. For example, you can create a group that includes all of the different French languages available.

### Steps in the Properties Pane

1. Select the object that you want.

2. In the **Properties** pane, under **Conditional**, double-click the variable type that you want to specify.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Variable type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify a variable based on which text can be conditionally shown.</td>
<td><strong>Text Source Variable</strong></td>
</tr>
<tr>
<td>For example, you want different text to appear when a report is run in a different language.</td>
<td></td>
</tr>
<tr>
<td>Specify a variable based on which object can be conditionally rendered.</td>
<td><strong>Render Variable</strong></td>
</tr>
<tr>
<td>For example, you want to make a revenue report smaller by not rendering rows that are below a threshold.</td>
<td></td>
</tr>
<tr>
<td>Specify a variable based on which object can be conditionally styled.</td>
<td><strong>Style Variable</strong></td>
</tr>
<tr>
<td>For example, you want data that meets some criterion to appear in a different color.</td>
<td></td>
</tr>
<tr>
<td>Specify a variable based on which objects inserted into a block can be conditionally rendered. Applies only to conditional block objects that you insert in a report (p. 89).</td>
<td><strong>Block Variable</strong></td>
</tr>
</tbody>
</table>
3. Click Variable and click one of the following variable types:
   • <New language variable>
   • <New string variable>
   • <New boolean variable>
   Tip: If you want to use an existing variable, you can select it here.

4. In the New Variable dialog box, type the name of the variable in the Name box.

5. If you created a string variable, click the add button and type the string values you want to define, and click OK.

6. If you created a language variable, select the languages you want to support, and click OK.

7. In the Expression Definition box, define the condition and click OK.

Adding Conditional Formatting to a Report

Enhance a report by adding conditional formatting. For example, use conditional formatting to identify exceptional data in a report.

With conditional formatting, you can
   • hide and show objects
   • highlight data
   • add multiple layouts
   • create a multilingual report

Hide and Show Objects

You can hide and show objects in a report based on a condition you define.

You can also specify that an object should not be rendered based on a condition (p. 158).

Steps
1. Open the report that you want.
2. Create a variable and define the condition that determines if the object is to be shown or hidden.
   Tip: Create a boolean variable to show and hide objects, as this type of variable has only two possible values.
3. In the Insertable Objects pane, on the toolbox tab, drag the Conditional Blocks object to the work area.
4. Click the conditional block.
5. In the Properties pane, double-click the Block Variable property.
6. Click Variable, click the variable you created, and click OK.
7. Click the Current Block property and click Yes.
8. In the Insertable Objects pane, drag the object you want to show or hide in the conditional block.
   For example, drag a data item from the source tab or from the data items tab.
   You may need to link the report page to a query (p. 94) before you can add a data item to the block.

When you run the report, the report objects to which you applied the variable are visible when the condition is satisfied and invisible when it is not.

Highlight Data

Highlight data in your report to better identify exceptional results. For example, you want to identify sales representatives who have exceeded their quota. You create a condition that checks whether each representative’s sales for the year is greater than their quota for the year.

Steps
1. Open the report that you want.
Chapter 5: Working with Existing Reports

2. Create a variable and define the condition that determines if the data will be highlighted.
3. In the work area, click the column that you want to highlight based on the condition you created.
4. In the Properties pane, double-click the Style Variable property.
5. Click Variable, click the variable you want to assign to the object, and click OK.
6. If you assigned a string variable, in the Values box, select the values you want the condition to support.
   Tip: A default value exists for the variable, and it is always selected.
7. If you assigned a language variable, in the Values box, select the languages you want the condition to support.
   Tip: A default value exists for the variable, and it is always selected.
8. Click OK.
9. Pause the pointer over the condition explorer button, and click one of the possible values for the variable other than the default value.
   Tip: When you select a value in Condition Explorer, the Explorer bar becomes green to indicate that conditional formatting is turned on, and that any changes you make to the report applies only to the variable value.
   For example, if you created a boolean variable, click the Yes value.
10. In the Properties pane, specify the formatting that you want to highlight the column with when the condition is satisfied.
    For example, click the Border property to create a thicker border around the column.
11. Repeat steps 9 to 10 for other possible values defined for the variable.
    Tip: When pausing the pointer over the condition explorer button, click (No variable) to view how the report looks when no variable is applied. Or you can triple-click the Explorer bar.

When you run the report, the report objects to which you applied the variable are highlighted when the condition is satisfied. For example, if you created a boolean variable, the objects are highlighted when the condition is met. If the condition is not satisfied for any object, no conditional formatting is applied.

Add Multiple Layouts

Add multiple layouts to show a report in different ways. For example, you can define a different layout for each language in a multilingual report. This allows you to create a single report that can be viewed by report consumers that use different regional settings.

Steps
1. Open the report that you want.
2. Create a variable and define the condition that will be used for each layout.
3. From the File menu, click Conditional Layouts.
4. Click Variable, click the variable you created, and click OK.
5. If you created a string variable, in the Values box, select the values you want the condition to support.
   Tip: A default value exists for the variable, and it is always selected.
6. If you created a language variable, in the Values box, select the languages you want the condition to support.
   Tip: A default value exists for the variable, and it is always selected.
7. Click OK.

A layout is created for each value you selected. Pause the pointer over the page explorer button to navigate the different layouts. For each layout, click the Report Pages link to create a report page, or click the Prompt Pages link to create a prompt page (p. 117), and add the objects you want.
Using Cognos 8 to Create Multilingual Reports

You can create reports that show data in more than one language and use different regional settings. This means that you can create a single report that can be used by report consumers anywhere in the world.

The samples databases provided with Cognos 8 store a selection of text fields, such as names and descriptions, in more than 25 languages to demonstrate a multilingual reporting environment. For information about how data is stored in the samples databases and how the samples databases are set up to use multilingual data, see the Administration and Security Guide.

Here is the process for creating a multilingual reporting environment:

❑ Use multilingual metadata.
   The data source administrator can store multilingual data in either individual tables, rows, or columns.
   For more information about configuring your database for multilingual reporting, see the Administration and Security Guide.

❑ Create a multilingual model.
   Modelers use Framework Manager to add multilingual metadata to the model from any data source type except OLAP. They add multilingual metadata by defining which languages the model supports, translating text strings in the model for things such as object names and descriptions, and defining which languages are exported in each package. If the data source contains multilingual data, modelers can define queries that retrieve data in the default language for the report user.
   For more information, see the Framework Manager User Guide.

❑ Create multilingual maps.
   Administrators and modelers use a Windows utility named Map Manager to import maps and update labels for maps in Report Studio. For map features such as country and city names, administrators and modelers can define alternative names to provide multilingual versions of text that appears on the map.
   For more information, see the Map Manager Installation and User Guide.

❑ Create a multilingual report.
   The report author uses Report Studio to create a report that can be viewed in different languages. For example, the report author can specify that text, such as the title, appears in German when the report is opened by a German user. Report authors can also add translations for text objects, and create other language-dependent objects.
   For more information, see the Report Studio User Guide.

❑ Specify the language in which a report is viewed.
   You can use Cognos Connection to do the following:
   • Define multilingual properties, such as a name, screen tip, and description, for each entry in the portal.
   • Specify the default language to be used when a report is run.
     Tip: You can specify the default language on the run options page, in the report properties, or in your preferences.
   • Specify a language, other than the default, to be used when a report is run.
   For more information, see the Cognos Connection User Guide.

The data then appears in the language and with the regional settings specified in

• the user’s Web browser options
• the run options
• the Cognos Connection preferences

Any text that users or authors add appears in the language in which they typed it.

Create a Multilingual Report in Report Studio

To create a multilingual report in Report Studio, do the following.

If you want the report to show data in different languages, the model must also be multilingual.
Chapter 5: Working with Existing Reports

Steps
1. Open the report that you want.
2. Create a report language variable.
3. In the work area, click the object that you want to modify based on one of the languages you selected.
4. In the Properties pane, double-click the Style Variable property.
   If you are changing the language of a text string, click Text Source Variable instead.
5. Click Variable and click the language variable you created.
6. In the Values box, select the languages you want the condition to support and click OK.
   Tip: A default value exists for the variable, and it is always selected.
7. Pause the pointer over the condition explorer button and click one of the possible languages for the variable.
   Tip: When you select a value in Condition Explorer, the Explorer bar becomes green to indicate that conditional formatting is turned on, and that any changes you make to the report applies only to the variable value.
8. In the Properties pane, specify the formatting that you want for the language.
   For example, to change the language of a text string, double-click the Text property, and select the new string.
9. Press Enter when you are done.
10. Repeat steps 7 to 9 for all other languages specified for the variable.
   Tip: When pausing the pointer over the condition explorer button, click (No variable) to view how the report looks when no variable is applied. Or you can triple-click the Explorer bar.

When you run the report, the report objects to which you applied the variable are formatted according to the browser's language.

Add Conditional Rendering

Add conditional rendering to specify which objects are rendered when a report is run. This is useful when your report contains sensitive data.

Conditional rendering is not the same as showing or hiding objects. When you hide an object, the object exists but is transparent. If an object is not rendered, it is not in the report.

For a list of objects that can be rendered conditionally, see the Render Variable property in "Report Studio Object and Property Reference" (p. 333).

Steps
1. Open the report that you want.
2. Select the list column to be rendered conditionally.
   Tip: You must select the list column, not list column body or list column title. If the body or title is selected, as indicated in the Properties pane, use the select ancestor button to select the list column.
3. In the Properties pane, double-click the Render Variable property.
4. Click Variable and click the variable that will be used to determine if the column is to be rendered.
5. In the Render for box, select the values you want the condition to support and click OK.
   Tip: A default value exists for the variable, and it is always selected.

Example - Create a Conditional Report

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report that shows orders after a date specified by the user. The report will prompt the user for a date, and will also ask whether the user wants to see a description for each order.

158  Report Studio
Steps

1. In the Cognos Connection Welcome page, click the Public Folders link.
2. Click the GO Sales and Retailers link, and then click the Report Studio link in the upper-right corner of the page.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   - Order date
   - Order number
   - Product name
   - Description
   - Quantity
   - Unit sale price
   - Revenue
   Tip: You can find these data items in the Products and Orders folders.
6. Click Order Date and click the section button.
7. Group the Order Number column by selecting the column and clicking the group button.
8. Click Revenue, click the aggregate button, and click Total.
9. Change the title of the report to New Orders.
10. Pause the pointer over the page explorer button and select Prompt Pages.
11. Create a new prompt page by double-clicking Pages in the Insertable Objects pane.
12. Double-click the new prompt page.
13. In the Insertable Objects pane, on the toolbox tab, double-click Text Item and type the following text:
   Enter the start date, and select if descriptions will be shown.
14. Insert a 2 by 2 table into the prompt page using the insert table button, and moving the pointer until four squares are highlighted in a 2 by 2 pattern.
15. In the Insertable Objects pane, on the toolbox tab, drag Text Item into the upper-left cell and type the following text:
   Starting Date
16. In the Insertable Objects pane, drag a Text Item into the lower-left cell, and type the following text:
   Show Descriptions
17. In the Insertable Objects pane, drag a Date Prompt into the upper-right cell.
18. When prompted with the Prompt Wizard, Choose a Parameter window, select Create a new parameter and type p_Date in the space provided, then click Next.
19. When prompted in the Create Filter window, select Create a parameterized filter with the following entries:
   - For Package item, click the ellipsis points (...) and click [gosales_goretailers].[Orders].[Order date].
   - For Operator, click >.
20. Click Finish.
21. In the Insertable Objects pane, drag a Value Prompt into the lower-right cell.
22. When prompted with the Prompt Wizard, Choose a Parameter window, select Create a new parameter and type p_ShowDescn in the space provided, and then click Finish.
23. Select the Value Prompt, and in the Properties pane, double-click Static Choices.
24. Click Variable, click <New boolean variable>, and when prompted, type the name showDesc.
25. Click the add button.
26. In the Edit dialog box, type Yes in both the Use and Display boxes.
27. Click the add button.
28. In the Edit dialog box, type No in both the Use and Display boxes.
29. Click OK.
30. Pause the pointer over the condition explorer button and click Variables.
31. Click the showDesc variable, and in the Properties pane, double-click Report Expression.
32. In the Report Expression dialog box, type the following in the Expression Definition window:
   
   ParamDisplayValue("p_ShowDesc") = 'Yes'
33. Click OK.
34. Pause the pointer over the page explorer button and click the report page.
35. Click the Descriptions column.
36. In the Properties pane, select the list column by clicking the select ancestor button and selecting List Column from the context menu.
37. In the Properties pane, double-click the Render Variable parameter and select the showDesc boolean variable you created in steps 24 to 33.
38. Click Run.

The report will prompt you for a date, and will then provide orders that occur after the date you entered. The report will also ask if the Descriptions column is to be shown, and the column will be rendered only if you choose Yes to this selection.

Drill-through Access

Using drill-through access, you can move from one report to another within a session while maintaining your focus on the same piece of data. For example, you select a product in a sales report and move to an inventory report about that product.

Drill-through access helps you to build business intelligence applications that are bigger than a single report. Drill-through applications are a network of linked reports that users can navigate, retaining their context and focus, to explore and analyze information.

Drill-through access works by defining the target report using prompt parameters, and then using information from the source report to provide answers to those prompts. An important part of defining a drill-through path is defining which values to use for each prompt. If a prompt is answered by the drill-through value passed to it, the prompt page does not appear.

In Cognos 8, you can drill through
- between reports created in different packages against different data source types
  For example, you can drill through from an analysis against a cube to a detailed report against a relational data source.
- from one existing report to another report using Report Studio (p. 164)
- between reports in Report Studio, Query Studio, or Analysis Studio, exploring data in many ways
  For more information, see the user guide for the studio you are working in.
- from Cognos Series 7 to Cognos 8 (p. 429)
- from Metric Studio to other Cognos 8 reports by passing parameters using URLs
  For more information, see the Metric Studio User Guide.

Understanding Drill-through Concepts

Before you set up drill-through access, you must understand the key concepts about drilling through. Knowing these concepts helps you to avoid errors so that report consumers drill through as efficiently as possible.

Model-based vs. Report-based Drill-through Access

The target of drill-through access is always a saved report definition. However, the report can be created by Report Studio, Query Studio, or Analysis Studio. The source and the drill-through mappings can be defined in two places.
In model-based drill-through access, the drill-through path consists of a target report and a set of source context to target parameter mappings and is defined as part of the package object. These drill-through paths are then available for any situation where any user is accessing data in the package. This functionality is useful for defining paths to reports that are useful to a wide audience.

For example, if a report about an employee shows an employee’s photo, location, phone extension, and so on, it would make sense for that report to be available when someone selects the employee name.

In report-based drill-through access, the drill-through path consists of a target report and a set of source context to target parameter mappings and is defined as part of a specific source report. These drill-through paths are associated with a specific data column, chart, or cross tab and are available only when the user selects that area of the report. Usually that area of the report shows the data to be passed as a parameter. However, other values can be passed as well or instead. Report-based drill-through access is useful when you author dashboards or networks of reports with specific links between them.

**Drilling Through to Different Formats**

When users follow a drill-through path, they usually run the report, filtered by the drill-through parameters. They then see the results in Cognos Viewer as an HTML Web page. However, there are other options.

Reports can be output as HTML web pages, PDF, XML, CSV, or Excel formats. When you define a drill path, you can choose the format of the output. This can be useful if the expected use of the target report is something other than online viewing. If the report will be printed, output it as PDF; if it will be exported to Excel for further processing, output it as Excel or CSV, and so on.

If you define a drill-through path to a report that is created in Analysis Studio or Query Studio, the report can be run and opened in its studio instead of in Cognos Viewer. This can be useful if you expect a consumer to use the drill target report as the start of an analysis or query session to find more information. Drilling through to Report Studio is not supported, because Report Studio does not show any data.

You can define an application where a dashboard style report of high-level data can be drilled through to an Analysis Studio view to investigate problems. The Analysis Studio view can then be drilled through to a PDF report for printing.

**Bookmark References**

When you drill through, the values that you pass are usually, but not always, used to filter the report using prompts. Cognos 8 Business Intelligence supports bookmarks within PDF reports so that a user can scroll a report to view the relevant part based on a URL parameter. For example, you may define a report with one page per product and add a bookmark of the product number on each page. Report consumers can then select a bookmark to see the product that they want.

When a bookmark in the source report is used in a drill-through definition, it provides the value for the URL parameter. When report consumers drill through using this definition, they see the relevant section of the target report.

Bookmark references are limited to reports that are output as PDF and in reports authored with bookmark objects. However, drilling through can invoke reports that are run on a schedule, typically overnight, and scrolled to show relevant data rather than always being executed on demand as part of the drill-through operation.

**Members and Values**

Dimensionally modeled data, whether stored in cubes or stored as Dimensionally Modeled Relational (DMR) data, organizes data into dimensions. These dimensions contain hierarchies. The hierarchies contain levels. And the levels contain members.

An example of a dimension is Locations. A Locations dimension may contain two hierarchies: Locations by Organization Structure and Locations by Geography. Either of these hierarchies may contain levels like Country and City.
Members are the instances in a level. For example, New York and London are members in the City level. A member may have multiple properties, such as Population, Latitude, and Longitude. Internally, a member is identified by a Member Unique Name (MUN) \((p. 162)\). The method by which an MUN is derived depends on the cube vendor.

Relational data models are made up of data subjects, such as Employees, which are made up of data items, such as Name or Extension. These data items have values, such as Peter Smith.

In Cognos 8, the methods of drilling through available at the package level are
- Dimensional (member) to Dimensional (member)
- Dimensional (member) to Relational (data item value)
- Relational (data item value) to Relational (data item value)

If the target parameter is a member, the source must be a member and must also be from a conformed dimension \((p. 162)\).

If the target parameter is a value, the source can be one of the following:
- a value
- a member, but only if the level is mapped to the data item correctly

For more information, see "Business Keys" \((p. 163)\).

**Member Unique Names**

The member unique name (MUN) is how the member is found in the data source, much like using business keys to find records in a table.

The member unique name is used in the expression for a member data item that is used in a report, a reference to members in filters and expressions, and used in drill-through between OLAP data sources. The member keys in the MUN for the different OLAP data sources must match.

If a member unique name changes, members that are directly referenced in expressions, filters, or reports are no longer found because the MUN is contained in the report specification. Member unique names can change for a variety of reasons. Changes to the hierarchy and level structures may change the level unique name. Or the business key values have changed and this changed the member key path. Or the application changed during design or over time. Or the cube has category codes that are unpredictably unique. Or the production environment has more members than the test environment. Or the member no longer exists in the data source.

To avoid these problems, we recommend the following practices:
- Use unique codes and keys within a dimension for the member keys.
- Use unique conformed values for similar dimensions between the target and source environments when enabling drill through.
- Ensure that the business keys and dimension metadata structure are the same between the production and test environments.
- Do not change the business keys in Framework Manager after going into production.
- We recommend that you resolve the non-unique keys within a dimension in the data source. Tildes are not recommended in the category codes.

**Conformed Dimensions**

If you work with more than one dimensional data source, you may notice that some dimensions are structured the same and some are not. The reason that dimensions can be structured differently is that the data sources may serve different purposes.

For example, a Customer dimension appears in a Revenue data store, but not in an Inventory data store. However, the Products dimension and the Time dimension appear in both data stores.

Dimensions that appear in multiple data stores are conformed if their structure is identical for all of the following:
- hierarchy names
- level names
- level order
- internal keys
Drilling through is possible between different dimensional data stores only if the dimensions are conformed. In the previous example of a Revenue data store and an Inventory data store, it is possible to define the Products and Time dimensions differently for each data store. However, for drilling through between the Products and Time dimensions to work, their structures must be identical in each data store.

### Business Keys

To drill through from a member to a value, you must ensure that the business key is used for drilling. The business key is a code that uniquely identifies each instance of the level or business entity.

For example, employees are usually uniquely identified by an employee number, not by their name, because their name is not necessarily unique. When you drill through from a dimensional member to a relational data item, the value provided is the business key. Therefore, the parameter in the target report must be defined to accept a business key value. The exact logic used to define the business key value supplied depends on the cube vendor. For Cognos PowerCubes, the business key value is the Source property defined for the level in Transformer.

**Tip:** When someone runs your drill-through report, you may not want them to be prompted for a business key. In Report Studio, you can build a prompt page with text that is familiar to the user, but filters on the business key.

### Drilling Through on Dates Between PowerCubes and Relational Packages

Usually, drilling through from OLAP to relational packages requires that the target report parameter is set using the business key in the relational data. However, this method does not work well for dates. OLAP data sources typically view dates as members, such as Quarter 1 2006, while relational data sources view dates as ranges, such as 1/Jan/2006 to 31/March/2006.

A special feature exists for drilling through between PowerCubes and relational packages. Ensure that the target report parameter is set up using `in_range`. Here is an example:

```
[gosales_goretailers].[Orders].[Order date] in_range ?Date?
```

Also ensure that the drill-through definition maps the parameter at the dimension level.

### Drilling Through Between Packages

You can set up drill-through access between different packages. The two packages can be based on different types of data source, but there are some limits.

The following table shows the data source mappings that support drill-through access.

<table>
<thead>
<tr>
<th>Source data source</th>
<th>Target data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLAP</td>
<td>OLAP</td>
</tr>
<tr>
<td><strong>Note:</strong> OLAP to OLAP drill through is supported only if the data source type is the same, for example, MSAS to MSAS.</td>
<td></td>
</tr>
<tr>
<td>OLAP</td>
<td>Dimensionally modeled relational</td>
</tr>
<tr>
<td>OLAP</td>
<td>Relational</td>
</tr>
<tr>
<td><strong>Note:</strong> For more information, see &quot;Business Keys&quot; (p. 163).</td>
<td></td>
</tr>
<tr>
<td>Dimensionally modeled relational</td>
<td>Dimensionally modeled relational</td>
</tr>
<tr>
<td>Dimensionally modeled relational</td>
<td>OLAP</td>
</tr>
<tr>
<td>Dimensionally modeled relational</td>
<td>Relational</td>
</tr>
<tr>
<td>Relational</td>
<td>Dimensionally modeled relational</td>
</tr>
</tbody>
</table>
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Scope

Scope is a concept that is specific to model-based drill-through access. Scope defines when the drill-through path is made available. Usually, you define the scope of a drill-through path to match the parameters that it passes.

For example, if the drill-through path passes an employee number to an employee report, you make the drill-through path available only when the user’s context includes an employee.

However, there are also situations when the same target report can be run with different parameters. In this case, you may want to define a scope that is more general than any specific parameter.

Scope is not required for report-based drill-through access because the drill-through path is defined for a specific report column.

Set Up Drill-through Access in a Report

Set up drill-through access in a report to link two reports containing related information. You can then access related or more detailed information in one report (the target) by selecting a data item value from another report (the source). In addition, you can pass parameter values from the source report to the target report. This means that you can filter the target report using the same prompted filter values in the parent report.

You can also drill through within the same report by creating bookmarks (p. 86), and create drill-through definitions in the package. Users can use package drill-through definitions to navigate to a target report from an Analysis Studio analysis, a Query Studio report, or a Report Studio report. For more information, see the Administration and Security Guide.

If you have the Cognos 8 software development kit (SDK) (p. 41), you can use URLs to set up drill-through access to and from third-party sources.

You can also drill through from a map (p. 77).

If you are using an SAP BW data source for the target report, and if the target report contains a variable for a hierarchy node, values from the source report can be values only of the data item representing the leaf-level identifier of the hierarchy.

Before you begin, ensure that you have a report that will serve as the source report and another report that will serve as the target report.

Steps

1. Open the target report.
2. Create a parameter that will serve as the drill-through column or that will be used to filter the report.
   For example, to drill through or filter Product line, create a parameter that looks like this:
   
   \[\text{Product line}]=?\text{prodline}_p?\n   
   Tip: Use the operators \text{in} or \text{in\_range} if you want the target report to accept multiple values or a range of values.
3. In the Usage box, do one of the following:
   - To specify that users must click a value in the source report, click \text{Required}.
     If users do not click a value, they will be prompted to choose a value before the target report appears.
   - To specify that users do not need to click a value in the source report, click \text{Optional}.
     If users do not click a value, they are not prompted to choose one.
   - To specify not to use the parameter, click \text{Disabled}.

<table>
<thead>
<tr>
<th>Source data source</th>
<th>Target data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relational</td>
<td>Relational</td>
</tr>
<tr>
<td>Note: For more information, see &quot;Business Keys&quot; (p. 163).</td>
<td></td>
</tr>
</tbody>
</table>
Clicking a value in the source report has no effect on the target report.

4. If you want to create other parameters, repeat steps 2 to 3.

5. Open the source report.

6. If you want to allow drill-through from the package, do the following:
   - From the Data menu, click Drill Behavior.
   - Select the Allow drill through from a package check box and click OK.

7. Click the object that will serve as the drill-through object.
   For example, if you want to pass a data item value to the target report, click a data item.
   **Tip:** If you are passing only parameter values to the target report, you do not have to drill on a data item. Instead, you can drill on any object in the report, such as the report title. This means that you can drill from outside the context of a query.

8. Click the drill throughs button.

9. Click the new drill through button.
   A drill-through definition is created.
   **Tip:** If you want to change the drill-through name, click the rename button, type the new name, and click OK.

10. On the Target report tab, click the ellipsis points (...) next to the Report box, and select the drill-through or target report.

11. Under the Parameters box, click the edit button.
   Each required and optional parameter defined in the target report appears in the Parameters dialog box.

12. For each parameter, click Method and do one of the following:
   - To specify not to pass any value, click (Default).
     That is, the default method is to not pass any value.
   - To specify not to use this parameter, click Do not use parameter.
     The target report is not be filtered by this parameter.
   - To pass values from a data item, click Pass data item value, click Value, and then click the data item that you want.
     Values for the selected data item are passed to the target report.
   - To pass values from a parameter, click Pass parameter value, click Value, and then click the parameter that you want.
     Values for the selected parameter are passed to the target report.

13. Click OK.

14. In the Action box, decide how the target report will be viewed when users click the drill-through column in the parent report:
   - To run the target report, click Run the report.
     Run the target report when you want to see the latest data.
   - To view the most recently saved output version of the target report, click View the most recent report.
     Saved output versions are created in Cognos Connection.
   - To use the default action specified for the report in Cognos Connection, click (Default).

15. If you chose to run the target report in the previous step, in the Format box, click the output format you want for your report.
    **Tip:** Click (Default) to run the report using the default format specified for the report in Cognos Connection.

16. If you want the target report to appear in a new window, select the Open in new window check box.

17. Click OK.

The drill-through object appears as a link with a plus sign (+) next to it. When users run the source report, they can click the object to drill through to the target report. If more than one target report is available, the Go To page appears with the list of available targets.
To view package drill-through definitions, users must right-click a value, click Go To, and then click Related Links.

Tip: If you run the target report directly, you are prompted to select a value for the report to run on.

**Specify the Drill-through Text**

You can specify the drill-through text that appears when users can drill through to more than one target. For example, if users from different regions view the report, you can show text in a different language for each region.

**Steps**
1. Right-click the drill-through object and click Drill Throughs.
2. If more than one drill-through exists for the object, in the Drill Throughs box, click a drill through.
3. Click the Label tab.
4. If you want to link the label to a condition, in the Condition box, do the following:
   - Click Variable, and click an existing variable or create a new one.
   - Click Values, and click one of the variable’s possible values.
5. In the Source type drop-down list, click the source type you want to use.
6. If the source type is Text, click the ellipsis points (...) beside the Text box and type the text you want.
7. If the source type is Data Item Value or Data Item Label, click Data Item, and click a data item.
8. If the source type is Report Expression, click the ellipsis points (...) beside the Report Expression box and define the expression.
9. If the label is linked to a condition, repeat steps 5 to 8 for the remaining possible values.
10. Click OK.

When users run the parent report and click a drill-through link, the Go to page appears. The drill-through text you specified appears for each target. If you did not specify the drill-through text for a target, the drill-through name is used.

**Example - Create a Drill-through Report**

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report that lists product sales by order method for each product line, and allows users to drill through from the sales report to view the product details for any item selected. You will create two reports, one that contains the details for the item, and another that lists the product sales for the order methods selected by users.

**Steps**
1. In the Cognos Connection Welcome page, click the Report Studio link.
2. Select the package GO Sales and Retailers.
3. In the Welcome dialog box, click Create a new report or template.
4. In the New dialog box, click List and click OK.
5. In the Insertable Objects pane, on the source tab, add the following data items to the list by double-clicking them:
   - Order method
   - Product line
   - Product type
   - Product name
   - Description
   - Introduction date
   - Product image

Tip: You can find these data items in the Orders and Products folders.
7. Click the filters button.
8. Click the add button, and type the following in the Expression Definition box:
   [Product name]=?p_PN?
9. Click OK.
10. Repeat steps 8 to 9 to create the following filter:
    [Order method] in ?p_OM?
11. Change the title of the report to Product Details.
12. Save the report as Product Details.
13. From the File menu, click New to create a new report.
14. In the New dialog box, click List and click OK.
15. In the Insertable Objects pane, on the source tab, add the following data items to the list by
double-clicking them:
   • Order method
   • Product line
   • Product type
   • Product name
   • Quantity
   • Revenue
   Tip: You can find these data items in the Orders and Products folders.
17. Click the filters button.
18. Click the add button, and type the following in the Expression Definition box:
    [Order method] in ?p_OM?
19. Click OK.
20. Right-click the Product Name column and click Drill Throughs.
21. Click the new drill through button.
22. Under Report, click the ellipsis points (...) and select the Product Details report you created
   previously.
23. Click Action and click Run the report.
24. Click Format and click HTML.
25. Click the edit button.
26. For the item p_OM, under Method, select Pass parameter value, and select p_OM for the
   Value.
27. For the item p_PN, under Method, select Pass data item value, and select Product name for
   the Value.
28. Click OK twice.
29. Change the title of the report to Product Revenue by Order Method.
30. Save the report as Product Revenue by Order Method.
31. Click the run report button.

When the report is run, you are prompted to select one or more order methods. When you click
OK, the list will show the product names as clickable links. When a product is clicked, the second
report will run, showing the order methods and product selected in the first report.

Create a Drill-up/Drill-down Report

You can create a report that allows the reader to drill down to lower level data sets or drill up to
higher-level data sets, provided you are using a dimensionally modeled data source. This will
allow you to rerun the report for a different data set without having to regenerate the report.
An example of a dimensional hierarchy might be:
Chapter 5: Working with Existing Reports

Drilling up and down allows you to view more general or more detailed information on your data within such a predefined dimensional hierarchy, without having to create different reports.

Before you begin, ensure that you are using a dimensional data source.

**Steps**
1. Open the report that you want.
2. From the Data menu, click Drill Behavior.
3. On the Basic tab, in the Report drill capabilities box, select the Allow drill-up and drill-down check box.
   By default, Report Studio determines which items can be drilled on, based on the dimensional structure.
4. If you want to disable drill-up or drill-down for a data item, select the data item in either the Disable drill-up for box or the Disable drill-down for box.
5. From the Advanced tab, you can change the drill-up or drill-down behavior for any data item by selecting the data item and then choosing one of the following behaviors.

<table>
<thead>
<tr>
<th>Behavior name</th>
<th>Drill-up behavior</th>
<th>Drill-down behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preserve</td>
<td>The data item’s value will remain unchanged.</td>
<td>The data item’s value will remain unchanged.</td>
</tr>
<tr>
<td>Empty Set</td>
<td>The set of values associated with this data item is set to be the empty set (novalues). For crosstabs, the data item will effectively be removed from the report.</td>
<td>The data item will be removed from the report.</td>
</tr>
<tr>
<td>Replace Item</td>
<td>The data item’s value will change to become the parent of the item drilled on (if a lowest-level summary was drilled up on), or the grandparent (if a lowest-level detail of a dimension was drilled up on).</td>
<td>The data item’s value will change to become the item drilled on.</td>
</tr>
<tr>
<td>Replace Expression</td>
<td>The data item’s value will change to become the children of the parent of the item drilled on (if a lowest-level summary was drilled up on), or the children of the grandparent (if a lowest-level detail of a dimension was drilled up on).</td>
<td>The data item’s value will change to become the children of the item drilled on.</td>
</tr>
<tr>
<td>Ancestor</td>
<td>The data item’s value will change to become the data value of the ancestor &quot;n generations higher&quot; in the dimensional hierarchy from the item drilled on. The number of generations or levels is determined by the Depth value.</td>
<td>The data item’s value will change to become the data value of the ancestor &quot;n generations higher&quot; in the dimensional hierarchy from the item drilled on. The number of generations or levels is determined by the Depth value.</td>
</tr>
</tbody>
</table>
6. Click OK.

The report will generate links for any item that can be drilled up or down on.

You can perform drill-down or drill-up by right-clicking the data item and choosing the action from the context menu. The menu items will be disabled if an item cannot be drilled up or down on.

### Member Sets

Member sets are used to group data items that are logically related for various actions, such as drill actions, zero suppression, and ranking. They can be defined as a flat list or, as a tree structure, where member sets that are in the same parent chain are considered related.

For example, for drill operations, a member set defines the set of items that can potentially change when a given item in the set is drilled on. The values of other items in the query or even those in the same hierarchy are preserved when any item in this set is drilled on. Usually, a member set references items that have logical roles in a drill action, such as a detail, a summary of the detail, or a parent of the detail. A single data item can belong to only one member set.

If no member set is defined for an item, the Cognos 8 server associates items into default member sets and behaviors using simple dimension rules on item expressions. You can override the behavior for a particular item while other items continue to use the default.

When you define a member set, you must explicitly define behaviors for each item in the set. Items in the set that have no behaviors have their values preserved.

Drill behaviors always act from a root member set. This means that when an item is drilled on, the root member of its member set is found and all items from the root down are processed. Although calculations and aggregates are not directly related by hierarchy, they respond because of their dependence on the items upon which they are based.

### Create a Member Set

Create a member set when you want to define a non-default drill behavior. You specify what items respond to a drill action by adding them to the member set.

### Steps

1. Open the report that you want.
2. Pause the pointer over the query explorer button and click the query in which you want to create a member set.
3. In the Properties pane, click the Define Member Sets property and click Yes.
4. Click the Member Sets tab.
5. In the Insertable Objects pane, drag the items that you want to the work area.
   To define a member set as a tree structure, drag the item that will serve as the root item of the set to the work area, and then drag other items over the root item to create the tree structure.
You can also nest member sets.

**Example - Create a Drill-up/Drill-down Report**

You are a report author at The Great Outdoors Company, which sells sporting equipment. You are requested to create a report that lists product sales for each product line. The user must be able to drill-down to retrieve data on the same criteria with a more detailed scope.

**Steps**
1. In the Cognos Connection **Welcome** page, click the **Report Studio** link.
2. Select the package **Great Outdoors Company**.
3. In the **Welcome** dialog box, click **Create a new report or template**.
4. In the **New** dialog box, click **Crosstab** and click **OK**.
5. In the **Insertable Objects** pane, on the source tab, add **Year** followed by **Years** to the columns section.
6. Add **General Manager** followed by **Product Line** to the rows section.
7. Insert **Products** as a total row in the crosstab.
8. Insert **Revenue** as the measure for the report.
9. From the **Data** menu, click **Drill Behavior**.
10. On the **Basic** tab, select the **Allow drill up and down** check box.
11. Click **OK**.
12. Change the title of the report to **Sales Report: Product Revenue by Period**.
13. Save the report.
14. Run the report.

When the report is rendered, the list shows the sales manager, the product lines, and even the years as links. When you right-click a link, a context menu allows you to drill-up or drill-down to run the report from a higher or lower level scope of that dimension. Notice how the **Years** and **Products** total columns are also updated.

**Create a Master-Detail Relationship**

Create a master-detail relationship to deliver information that would otherwise require two or more reports. For example, you can combine a list with a chart. The list can contain product lines and the chart can show details for each product line.

Master-detail relationships must appear in nested frames to produce the correct results. You can create a master-detail relationship in two ways:

- Use a parent frame for the master query and a nested frame for the detail query.
- Associate a report page with the master query and use a data container, such as a list or crosstab, on the page for the detail query.

Note that you cannot display parent data in the child frame or child data in the parent frame. Also, you cannot perform calculations across master-detail queries.

You can use a master-detail relationship to show data from separate data sources in a single report. However, the data sources must be contained in the same package.

If you are working with an SAP BW data source, you cannot use a data item from the master query that contains non-ASCII values.

If you want to create a master-detail relationship using queries that reference two different dimensional data sources, you must first link the members by aliasing the levels that contain the members.

**Steps**
1. Open the report that you want.
2. If you want to use a parent frame for the master query and a nested frame for the detail query, do the following:
Chapter 5: Working with Existing Reports

- In the Insertable Objects pane, on the toolbox tab, drag a List, Repeater Table, or Repeater to the report.
- Click OK to create a new query.
- Add a second data container to the object you previously inserted.
  You can insert a list, crosstab, chart, repeater table, or repeater into a list. You can add a list to a repeater table or repeater.
- Click OK to create a second query.
- Add the data items you want to both data containers.

3. If you want to associate a report page with the master query and use a data container on the page for the detail query, do the following:
   - Click anywhere in the report page.
   - In the Properties pane, click the select ancestor button and click Page.
   - Click the Query property and then choose a query from the drop-down list.
   - In the Insertable Objects pane, on the toolbox tab, drag a data container to the report.
   - Click OK to create the detail query.

4. If you want to link a data item in the master query to a parameter in the detail query instead of to another data item, create the parameter in the detail query.
   Use parameters when you want to filter values at a lower level in the detail query.
   - Pause the pointer over the query explorer button and click the detail query.
   - In the Insertable Objects pane, on the toolbox tab, drag the Filter object to the Detail Filters box.
   - In the Expression Definition box, create the parameter (p. 122).
   - Click OK.

5. Pause the pointer over the page explorer button, and click the report page.
   - Click anywhere in the report page.
   - In the Properties pane, click the select ancestor button and click Page.

6. Click the data container containing the details.

7. From the Data menu, click Master Detail Relationships.

8. Click the New Link button.

9. In the Master Query box, click the data item that will provide the primary information.

10. To link the master query to a data item, in the Detail Query box, click the data item that will provide the detailed information.

11. To link the master query to a parameter, in the Parameters box, click the parameter that will provide the detailed information.

12. Repeat steps 8 to 11 to create other links.
    
    Tip: To delete a link, click it and press Delete.

13. Click OK.

Tip: To avoid seeing the same data item twice in the report, click the data item in the data container driven by the detail query, and click the cut button. This removes the item from the report display, but keeps it in the query.

Link Members from Two Dimensional Data Sources

If you create a master-detail relationship using queries that reference two different dimensional data sources, you may need to create a relationship between levels with the same member captions but different Member Unique Names (MUNs). For more information about MUNs, see “Recommendation - Use Member Unique Name (MUN) Aliases” (p. 225).

For example, you may want to link the Americas member in the Sales territory level in the Great Outdoors cube with Americas in the GO Subsidiary level in the Great Outdoors Finance cube. To create the relationship, you must alias the levels that contain the members that you want to link.
Chapter 5: Working with Existing Reports

**Steps**
1. In the parent frame or the report page, double-click the level that contains the member that will provide the primary information.
   The **Data Item Expression** dialog box appears.
2. In the **Expression Definition** box, use the expression in the following function:
   - `caption(expression)`
   For example, `caption([great_outdoors_company].[Sales Territory].[Sales Territory].[Sales territory])`
3. Click **OK**.
4. Repeat steps 1 to 3 for the level in the data container that contains the details.
   - A caption alias is created for each level. You can now use the caption alias for each level to create a master-detail relationship using member captions, which are the same, instead of MUNs, which are different.

You can now create the master-detail relationship between the two levels.
Chapter 6: Try It Yourself Exercises

If you have some experience with Report Studio and want to improve your skills in report writing, this chapter is for you. Each topic gives you some guidelines on how to create each sample report. If you need help, links to more detailed instructions are available.

If you have not used Report Studio before, see the Report Studio Tour first to learn basic skills.

Try It Yourself - Create a List Report

Use list reports to show detailed information from your database, such as product lists and customer lists.

In this topic, you learn how to create a list report that shows revenue for each product for the last quarter of 2002.

It should take 15 to 20 minutes to complete this topic, and your report will look like this.

### Steps

1. Create a new list report that uses the sample package named GO Sales and Retailers and the sample template named GO-list.
2. Add the following data items to the report:
   - Order number (in Orders)
   - Order date (in Orders)
   - Product type (in Products)
   - Product name (in Products)
   - Quantity (in Orders)
   
   Tip: Use the source tab in the Insertable Objects pane.
3. Create this query calculation named Revenue:
   
   \[ \text{Revenue} = \text{gosales_goretailers}.\text{Orders}.\text{Unit price} \times \text{Quantity} \]

   Tip: Use the toolbox tab in the Insertable Objects pane.
4. Group the Product type column to make the report easier to read. Then group the Order date column.
5. Make the Product type column appear as a section header in the report.
6. Bold Product type in the body of the report.
7. Remove the Product type column title without removing Product type from the body of the report.
8. Add a total to the Revenue column to view total revenue for each product type.
9. Create this tabular filter to view revenue for the last quarter of 2004.
   Order date between 2004-10-01 and 2004-12-31
10. Change the Data Format property for the Order date column to be date only, not date and time.
11. Change the title text placeholder to this text:
    Product Orders
12. Add the following text to the bottom cell, replacing the date object:
    4th Quarter
13. Format the text as Tahoma, 11 pt, and apply the Web-safe color #6699CC.
14. Run the report to view what it will look like for your users.

Need More Help?
- Add Data to a Report
- Add a Header or Footer
- Add a Summary
- Create a Calculation
- Filter Data
- Group Data
- Run a Report

Try It Yourself - Create a Crosstab

Use crosstab reports to compare information that uses one or more criteria. The values at the intersection points of rows and columns show summarized information.

In this topic, you learn how to create a crosstab that shows the cost of goods sold for each product line and product type by quarter.

It should take 15 to 20 minutes to complete this topic, and your report will look like this.

<table>
<thead>
<tr>
<th>Product Line Profitability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Quarter 1</strong></td>
</tr>
<tr>
<td>Revenue</td>
</tr>
<tr>
<td><strong>Camp 2005</strong></td>
</tr>
<tr>
<td>Equipment</td>
</tr>
<tr>
<td>Cooking Gear</td>
</tr>
<tr>
<td>Lanterns</td>
</tr>
<tr>
<td>Packs</td>
</tr>
<tr>
<td>Sleeping Bags</td>
</tr>
<tr>
<td>Tents</td>
</tr>
<tr>
<td><strong>Golf Equipment</strong></td>
</tr>
<tr>
<td>Golf Accessories</td>
</tr>
<tr>
<td>Paddles</td>
</tr>
</tbody>
</table>

Try It Yourself - Create a Crosstab
Steps
1. Create a new crosstab that uses the sample package named GO Sales and Retailers and the sample template named GO-crosstab.
2. Add the following data items to the report:
   • Order year (in Orders) in the columns
   • Product line (in Products) in the rows
   • Revenue (in Orders) as the first measure
   • Gross profit (in Orders) as the second measure
   Tip: Use the source tab in the Insertable Objects pane.
3. Nest Product type (in Products) after Product line in the rows.
4. Nest Order month (in Orders) under Order year in the columns.
5. Change the Expression property for Order month to:
   mod([gosales_goretailers].[Orders].[Order month],4)+1
   Tip: Use the toolbox tab in the Insertable Objects pane.
6. Create this query calculation named Cost of Goods Sold:
   [Revenue]-[Gross Profit]
8. Change the blue text placeholder to this text:
   Profitability by Product Line
9. Run the report to view what it will look like for your users.

Need More Help?
• Add Data to a Report
• Create a Calculation
• Create a Nested Crosstab Report
• Crosstab Reports
• Run a Report

Try It Yourself - Create Charts

Use charts to reveal trends and relationships that are not evident in tabular reports. Report Studio gives you flexibility in how you organize data in charts.

In this topic, you learn how to create charts that show different information.
It should take 15 to 20 minutes to complete this topic.
Let's take a look at the basic chart interface.

Steps to Create a Basic Column Chart
1. Open Report Studio with the GO Sales and Retailers package.
2. Create a new Chart report.
3. Click OK to open the default column chart.
Chapter 6: Try It Yourself Exercises

You can click on the white space around the chart to select the whole chart, or you can click on an individual item, such as an axis icon or chart type icon, to find a given chart property.

The Series drop zone defines the items that appear in the legend. This is the legend edge. The Category (x-axis) drop zone defines the ordinal edge.

Let’s chart some GO Sales and Retailers data.

**Steps to Add Data to a Chart**

1. Drag the following items to the chart:
   - **Revenue** (in Orders) to the Measure drop zone
   - **Product line** (in Products) to the Category (x-axis) drop zone
   
   **Tip:** Use the source tab in the Insertable Objects pane.

   Column, bar, line, area, and clustered charts are based on the same combination chart for flexibility in charting.

2. Run the report to see your chart.


We want to show the revenue value on each column in the chart.

**Steps to Show Values in a Chart**

1. Click the bar icon in the Series drop zone.
2. In the Properties pane, under Chart Labels, change the Values property to Show.
3. Run the report to see your chart.

   You can customize the font properties for the values shown in the chart, independent of the axis labels.

4. From the Structure menu, clear Lock Page Objects to unlock the chart objects.
5. Select the chart body by clicking between the axis.
6. In the Properties pane, increase the font size and change the foreground color to red.
7. Run the report to see your chart.
   This makes the values easier to see. After we add more data, showing the values clutters the chart, so we will remove them from view again.

9. Click the bar icon in the Series drop zone.
10. In the Properties pane, under Chart Labels, change the Values property to Hide.
Let's group this chart based on Order Method.

**Steps to Group Data in a Chart**

1. Drag Order method (in Orders) to the Series drop zone.
2. Run the report to see your chart.

![Chart Image]

Let's see what other kind of charts we can make with this data.

**Steps to Change the Chart Configuration**

1. Click the Order method legend item icon.

   ![Stacks and Clusters (series):](image)

   There are many properties to let you customize how the columns are shown.

2. In the Properties pane, set the Grouping Type property to Stacked.
3. Run the report to see your chart.

You can also use the properties in the Properties pane to show the data as a 100% stacked column chart, show or hide borders, and so on.

Let's add some more data to this chart.

**Steps to Combine Sets of Data in Charts**

1. Add Order year (in Orders) to the Series drop zone.

   This is how you union together the Order method and Order year items on the legend edge:

   ```
   Stacks and Clusters (series):
   - Order method
   - Order year
   ```

   2. Run the report to see your chart.
Chapter 6: Try It Yourself Exercises

Report Studio places another set of data values on the stack.

4. Click the Order year legend item icon.
5. In the Properties pane, set the Grouping Type property to Clustered.
6. Run the report to see your chart.

You can combine stacked and unstacked charts.

8. Select Order year.
9. Set the Chart Type property to Line.
10. Run the report to see your chart.
You can combine line and stacked charts. Let’s improve the presentation of the **Order year** values by showing them on their own y-axis.

**Steps to Change the Chart Presentation**

2. Select **Order year**.
3. Set the **Axis Assignment** property to **Y Axis 2**.
   
   The chart image now shows two y-axes. There are two ways to view this second y-axis.
4. Select the chart background, and set the **Y2 Axis Position** property to **bipolar**.
5. Run the report to see your chart.
   
   The line chart appears under the stacked column chart.
7. Select the chart background, and set the **Y2 Axis Position** property to **dual**.
8. Run the report to see your chart.

Now the chart is too narrow. We also prefer points instead of lines.

10. Select **Order year** and, in the **Properties** pane, change the **Line** property from **Yes** to **No**.
    
    You can also use the **Properties** pane to resize the points, restyle the lines, and so on.
11. Select the chart background, set the **Size & Overflow** property **Width** to 1000 px, and click **OK**.

12. Run the report to see your chart.

![Revenue Chart](image)

There is another way to show the second axis.

14. Set the **Y Axis 2** property to **bi-polar**.
You can pivot a chart like a crosstab.

15. Click the swap rows and columns button on the toolbar.
There are now two ordinal edge entries: **Order method** and **Order year**.

Columns (**x-axis**):

```html
<#Order method#>  <#Order year#>
```

You can union and nest data items on both edges equally. There is an additional drop zone on the legend edge because multiple legend entries are more common in charting than multiple ordinal edge entries.

16. Run the report to see your chart.

![Revenue Chart](image)

You can view this as a horizontal bar chart.

18. Select the chart and set the **Chart Orientation** property to **Horizontal**.

19. In the **Size & Overflow** property, delete the **Width** value.

20. Run the report to see your chart.
You nest data to make charts even more flexible. For example, you can nest Order Year within Order Method to show the trend for each order method.

**Steps to Nest Data**
2. Drag Order year below Order method as shown below.
3. Click Order year in the Category (y-axis) drop zone, and from the Data menu, click Sort Ascending.
   There are several drop zones in this area. They allow you to nest and union data as you can in a crosstab.
4. Run the report to see your chart.

You can convert one chart type into another. We will start with a progressive column chart to show revenue contribution by product line.

**Steps to Convert a Chart**
1. Create a new chart.
2. In the Chart group pane, click Progressive.
3. In the Chart type pane, click Progressive Column.
4. Click OK.
5. Drag Revenue (in Orders) to the Measure (y-axis) drop zone.
6. Drag Product line (in Products) to the Category (x-axis) drop zone.
7. Run the report to see your chart.
9. Right-click the chart, and from the right-click menu, click Convert Chart.
10. Click OK to open the default column chart.
11. In the Chart Conversion Loss dialog box, click OK.

   Up to now, we have used only a single measure on the chart. Now we will use two measures to compare revenue versus planned revenue for each product line.
12. Drag Revenue from the Measure (y-axis) drop zone to the Series drop zone.
13. In the Properties pane, ensure that the Chart Type property is set to Bar.
14. Drag Planned Revenue (in Orders) to the Series drop zone, under Revenue.
15. Select Planned Revenue and, in the Properties pane, set the Chart Type property to Line.
16. Change the Line property from Yes to No.
17. Run the report to see your chart.


   You can also show Planned revenue as a radar chart.
19. Right-click the chart, and from the right-click menu, click Convert Chart.
20. In the Convert Chart dialog box, click the Radar, Polar chart group and the Radar with Markers chart type. Click OK.
21. In the Chart Conversion Loss dialog box, click OK.
22. Run the report to see your chart.

It is difficult to distinguish Revenue from Planned revenue in this chart type. Another chart you can use to compare revenue and planned revenue is a metrics range chart.
Chapter 6: Try It Yourself Exercises

Steps to Create a Metrics Range Chart
1. In Cognos Connection, go to the GO Sales and Retailers package.
2. Click the Report Studio link.
   Report Studio starts.
3. From the File menu, click New.
4. Click Chart and click OK.
5. In the Chart group pane, click Metrics Range.
6. In the Chart type pane, click Column Chart with Range Indicators.
7. Click OK.
8. Drag the following items to the chart:
   • Revenue (in Orders) to the Actual (y-axis) drop zone.
   • Planned revenue (in Orders) to the Target (marker) drop zone.
   • Order year (in Orders) to the Category (y-axis) drop zone
9. From the Insertable Objects pane, on the toolbox tab, drag a query calculation to the Tolerance (marker) drop zone.
10. In the Create Calculation dialog box, type Tolerance
11. Click OK.
12. In the Expression Definition box, type the expression: 
   [Planned revenue] * 0.1
13. Click OK.
14. Click run on the toolbar, and view the report.

Need More Help?
• Add Data to a Report
• Charts
• Working with Queries
• Run a Report

Try It Yourself - Create Map Reports

Use maps to represent data that can be displayed spatially. Cognos 8 includes maps that you can link to data in your data source. You can edit maps and add additional maps by using Map Manager. For more information see the Map Manager Installation and User Guide.
Show the Distribution of Revenue by Country

In this exercise, you use a map of the world to show revenue by country.

Steps to Begin a Map
1. Open Report Studio with the GO Sales and Retailers package.
2. Create a new Map report.
3. Select the map of the world.
4. In the Region Layers box, click Countries + Territories.
5. In the Point Layers box, click None.
6. Click OK.
   Tip: You can return to the Choose Map dialog box at any time by double-clicking the map object.

Steps to Define the Region Layer
1. In the Insertable Objects pane, expand Orders.
2. Drag Revenue to the Color drop zone.
3. In the Insertable Objects pane, expand Countries.
4. Drag Country to the Location drop zone.
5. Run the report.

Steps to Format the Numbers in the Legend
1. In the region layer, click the Revenue measure in the color drop zone.
2. In the Data section of the Properties pane, click Data Format, and then click the ellipsis points (...).
3. In the Format Type box, select Currency.
4. For the Currency property, select $ (USD) - United States of America, dollar.
5. For the No. of Decimal Places property, select 0 and click OK.
6. Run the report.

Steps to Add Another Color to the Map
1. In the Report, click Region Layer.
Chapter 6: Try It Yourself Exercises

2. In the Color & Background section of the Properties pane, click Palette, and then click the ellipses points (...).
3. Click the new button, and click Color.
   A new color is added to the list of colors.
4. With the new color selected, click Color in the right pane of the dialog box, and select a color.
   Four colors are now defined.
5. Change the percentage boundaries for the colors to 25, 50, and 75.
6. Click OK.
7. Run the Report.
   The colors on the map now indicate four levels of revenue.

Show Revenue and Margins for Cities in the United States

In this exercise you use a map of the United States to show revenue and margins for outlets by using points for cities.

Steps to Begin the Map
1. Open Report Studio with the GO Sales and Retailers package.
2. Create a new Map report.
3. In the Choose Map dialog box, in the Maps pane, expand Americas and click United States (Continental 48).
4. In the Region Layers box, click States.
5. In the Point Layers box, click Major Cities.
6. Click OK.
   Tip: You can return to the Choose Map dialog box at any time by double-clicking the map body.

Steps to Set the Point Layer
1. In the Insertable Objects pane, expand Orders.
2. Drag Margin to the Color drop zone in the Point Layer.
3. Drag Revenue to the Size drop zone in the Point Layer.
4. In the Insertable Objects pane, expand Sales branch address.
5. Drag City to the Location drop zone in the Point Layer.
6. Click the map object.
7. In the Properties pane, click Ignore Data with no Features and change the property to Yes.
   This specifies that the report can run even if there is not a match in the map file for every data value retrieved from the data source.
8. Run the report.
   The points are located at cities with sales branches. The size of the point shows the level of revenue and the color of the point shows the margin for each sales location.
Steps to Change the Size of the Points
1. In the point layer, click Revenue in the Size drop zone.
2. In the General section of the Properties pane, click Minimum Size, and select 2pt.
3. Click Maximum Size, and select 10pt.
4. Run the report.
   The points on the map are now smaller.

Need More Help?
- Parts of a Map Report
- Ignore Data with no Features
- Match Data Values to Names in the Map File
- Add Titles, Subtitles, and Footers
- Add Legend Titles
- Add a Note to a Map
- Customize a Map
- Drill Through to Another Report From a Map
- Add and Edit Maps

Try It Yourself - Add Prompts
Use prompts to filter data by using the criteria entered when the report is run.

In this topic, you learn how to create cascading prompts for an existing report. Your users have the choice of filtering data in the line chart or viewing all the data.

It should take 10 to 15 minutes to complete this topic, and your prompt page will look like this.
Chapter 6: Try It Yourself Exercises

Steps
1. Open the sample report named Product Line by Year.
2. Add a value prompt to the report that uses Product line code for the package item. Use Product line as the values to display. This is an optional filter.
   Tip: Use the toolbox tab in the Insertable Objects pane.
3. Add a value prompt to the report that uses Year for the package item and the values to display. This is an optional filter.
4. Ensure the Required property for both prompts is set to No.
5. Change the title text placeholder to this text:
   Product Line by Year
6. Run the report to view what it will look like for your users.

Need More Help?
• Adding a Prompt
• Run a Report

Try It Yourself - Create a Multiple-Page Report
Add pages to a new or existing report that contain different content to create a multiple-page report.

In this topic, you learn how to create a multiple-page report that shows several sales performance reports.

It should take 15 to 20 minutes to complete this topic, and your report pages will look like this.
Steps
1. Open the sample report named Global Sales (1). This sample contains several reports.
2. Add a page.
3. Add a 3-D column chart to the new page as a new query.
4. Add these data items to the chart:
   • Revenue (in Orders) as the axis measure
   • Order method (in Orders) as the category
   • Sales territory (in Countries) as the series
   Tip: Use the source tab in the Insertable Objects pane.
5. Add a list report to the page as a new query.
6. Add these data items to the list report:
   • Sales territory (in Countries)
   • Country (in Countries)
   • Planned revenue (in Orders)
   • Revenue (in Orders)
   • Gross profit (in Orders)
7. Group the Sales territory column to make the report easier to read. Then group the Country column.
8. Make the Sales territory column appear as a list header in the report.
10. Remove the Sales territory column title without removing Sales territory from the body of the report.
11. Change the blue text placeholder to this text: Performance by Sales Territory
12. Run the report to view what it will look like for your users.

Need More Help?
• Add a Page
• Add Data to a Report
• Charts
• Crosstab Reports
• List Reports
• Run a Report
Try It Yourself - Create a Template

Use templates to create a standard look for corporate reports. Any report can be used as a template. You simply create and format a report and then use it as your starting point for all other reports, leaving the original report unchanged.

In this topic, you learn how to create a template containing a header and footer.

It should take 15 to 20 minutes to complete this topic, and your template will look like this.

**Steps**
1. Create a new blank report, but do not add data to it.
2. Add a page header.
3. Add a border to the bottom of the header. Make the border 2-1/4 pts and apply the Web-safe color #6699CC.
4. Add a table that has two columns and two rows.
   *Tip:* Use the toolbox tab in the Insertable Objects pane.
5. Add a text item to the top-left cell of the table, and format it as Tahoma, 14 pt, bold, and apply the Web-safe color #6699CC.
6. Add the date to the bottom-left cell of the table, and format it as Tahoma, 9 pt, gray.
7. Add this sample image to the top-right cell and align the image to the right:
   ```
   ..\samples\images\logo.jpg
   ```
8. Add this text item to the bottom-right cell:
   *Great Outdoors*
9. Format the *Great Outdoors* text as Tahoma, 11 pt, bold. Apply the Web-safe color #6699CC. Align the text to the right.
10. Add a page footer.
11. Add the same border to the top of the footer as you added to the header.
12. Add a table that has three columns and three rows.
13. Merge the second and third cells in the first row.
14. Merge all cells in the third row.
15. Add the time to the top-right cell of the table, and align it to the right.
16. Add the page number to the middle-center cell of the table, and align it to the center.
17. Format the time and page number as Tahoma, 9 pt, gray.
18. Add this sample image to the middle-left cell:
   ```
   ..\samples\images\banner_cogsquare.jpg
   ```
19. Add a list report to the report body, and center the list report.
20. Convert the report to a template.
21. Save the template, and use it as the starting point for a report.

**Need More Help?**
- Add Borders
- Add Color
- Add a Header or Footer
- Add Text
- Align an Object
- Choose a Report Template
- Create Your Own Report Templates
- Format Data
- Insert an Image
- Use Tables to Control Where Objects Appear

**Try It Yourself - Create an Invoice**

Combine a list report, tables, text, and an image to create an invoice.

In this topic, you learn how to create an invoice that shows each customer's order.

It should take 30 to 40 minutes to complete this topic, and your invoice will look like this.

---

**Invoice**

*Great Outdoors*

<table>
<thead>
<tr>
<th>Sales Person</th>
<th>Order Method</th>
<th>Ship Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donald Chow</td>
<td>E-mail</td>
<td>Oct 1, 2004</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Product Number</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canyon Hike Extreme 55</td>
<td>27</td>
<td>Perfect for long back-country trips, this pack featured an expandable front</td>
<td>14</td>
<td>$65.02</td>
<td>$914.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pocket includes a large sleeping bag compartment, packed shoulder harness,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>back and waist belt, 52000 cu. in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finely Extreme</td>
<td>54</td>
<td>The Finely Extreme is under 15 oz, net produces 7000 candlepower using</td>
<td>104</td>
<td>$4.24</td>
<td>$552.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>two lithium batteries and a thin bulb, shock and water resistant. Weight: 10.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TrailChef Water Bag</td>
<td>11</td>
<td>Lightweight, collapsible bag to carry liquids easily. Wide mouth for easy</td>
<td>122</td>
<td>$8.89</td>
<td>$1083.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>filling. Holds 16 liters.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$12,580.77

*Please make checks payable to: The Great Outdoors*

Tax $900.62
Shipping $125.00

19.9% interest per annum will be charged on overdue accounts.

Total $13,596.64

---

**Get Started**

1. Create a new blank report that uses the sample package named GO Sales and Retailers.
2. Change the font for the entire page to Arial.

**Define the Page Header**

1. Add a page header to the report.
2. Add a table with two vertical bands (columns) and two horizontal bands (rows).
3. Add this text to the top left cell and format it (we used the Tahoma font, 14 point, and a Web-safe blue):

   Invoice

4. Add the date to the bottom left cell.
5. Add this sample image to the top right cell:
   ..\samples\images\logo.jpg

6. Add this text to the bottom right cell and format it (we used the Tahoma font, 11 point, and a Web-safe blue):
   **Great Outdoors**

7. Add a border to the header.

8. Set the bottom padding to 10 pixels.

**Associate the Page with a New Query**

1. In the Report Explorer view, create a new query and add **Order number** (in Orders) as a dimension.

2. In the Report Pages view, create a new page set and add the new query to the Data properties of the page set. This means that you can add a data item anywhere in the report.

3. Add the **Order number** to the header, next to Invoice.

4. Group **Order number**.

5. Change the data format for the **Order number** to not have a comma.

**Set Up the Page Body**

1. Add a block to the page body.

2. Change the top padding for the block to 10 pixels.

3. Add a table with two rows and three columns to the block. The table must be the maximum width and have a border.

4. Add a block after the table.

5. Change the top padding for the bottom block to 20 pixels.

6. Change the background color of the first row of the table to purple.

7. Center the text in the table.

8. Add a list below the bottom block that you added.

**Add Data to the Page Body**

1. Add text items to the first row of the table and use this text for each one:
   - Sales Name
   - Order Method
   - Ship Date

2. Add these data items to the second row of the table:
   - Staff name (in Sales reps)
   - Order method (in Orders)
   - Order date (in Orders)

   **Tip:** Use the source tab in the Insertable Objects pane.

3. Change the Data Format property for the **Ship Date** column to be a date only, not date and time.

4. Add these data items to the list report:
   - Product name (in Products)
   - Product number (in Products)
   - Description (in Products)
   - Quantity (in Orders)
   - Unit price (in Orders)

5. Add this query calculation as a column and name it **Price**:
   
   `[gosales_goretailers].[Order details].[Quantity]*[gosales_goretailers].[Order details].[Unit price]`

6. Change the Aggregate Function property for the **Quantity** column to **None**.

7. Change the Aggregate Function property for the **Unit price** column to **None**.
Add Information at the Bottom of Each Invoice

1. Add an overall footer to the list.
2. Add a subtotal to the **Price** column.
3. Insert a row and add a query calculation named **Tax** to the new row:
   \[ ([gosales_goretailers].[Orders].[Quantity] \times [gosales_goretailers].[Orders].[Unit price]) \times 0.07 \]
4. Add this text item next to **Tax** and bold the text:
   Please make checks payable to: The Great Outdoors
5. Merge the cells next to the **Tax** label so that the text item has more room.
6. Insert a row and add a query calculation named **Shipping** to the new row:
   \[ ([gosales_goretailers].[Orders].[Quantity] \times [gosales_goretailers].[Orders].[Unit price]) \times 0.01 \]
7. Remove the borders from the cells to the left of the **Shipping** label.
8. Insert a row and add a query calculation named **Total** to the new row:
   \[ ([gosales_goretailers].[Orders].[Quantity] \times [gosales_goretailers].[Orders].[Unit price]) \times 1.08 \]
9. Add this text item next to the **Total** and then bold and center the text:
   19.5% interest per annum will be charged on overdue accounts.
10. Merge the cells next to the **Total** label so that the text item has more room.
11. Run the invoice to view what it will look like for your users.

Need More Help?

- Add Data to a Report
- Add a Header or Footer
- Add a Summary
- Add Text
- Choose a Report Template
- Create a Calculation
- Group Data
- Use Tables to Control Where Objects Appear
- Working with Queries
- Run a Report

Try It Yourself - Create a Dashboard Report

Create a dashboard report to show a high-level graphical view of company performance indicators. By using dashboards, users can
- drill up and drill down to see higher and lower levels of detail
- navigate to other targets, including Report Studio reports, Query Studio reports, and Analysis Studio analyses
- include multiple charts derived from different data sources in a single report

In this topic, you will learn how to create a dashboard so that users can examine important sales data in a single view.

It should take 15 to 20 minutes to complete this topic, and your dashboard will look like this.
Chapter 6: Try It Yourself Exercises

Steps to Create the Report and Add Data
1. Create a blank report that uses the sample package named Great Outdoors Company.
2. Add a gauge chart, column chart, and crosstab.
3. Drag the following items to the gauge chart:
   - Gross profit (in Measures) to the Measure drop zone
   - Product line level (in Products) to the Needles (series) drop zone
   - Sales territory level (in Sales Territory) to the Gauges drop zone
4. Drag the following items to the column chart:
   - Revenue (in Measures) to the Measure (y-axis) drop zone
   - Product line level (in Products) to the Category (x-axis) drop zone
   - Retailer type level (in Retailer) and Sales territory (in Sales Territory) to the Series drop zone
5. Drag the following items to the crosstab:
   - Gross margin (in Measures) to the Measures drop zone
   - Product line level (in Products) to the Rows drop zone
   - Year level (in Years) and Sales territory level (in Sales Territory) to the Columns drop zone

Steps to Format the Gauge Chart
1. Click the gauge chart.
2. Set the Size & Overflow property width to 400 px.
3. Set the Title property to Show.
4. Double-click the chart title and type the following text:
   Gross Profit for Product Lines by Sales Territory
5. Set the Font property for the chart title to Arial, 12pt, Bold.
6. Expand Axis titles, click the horizontal axis title, and set the Visible property to No.
7. Click the numerical axis and, in the Maximum Value property, type 4000000.

Steps to Format the Column Chart
1. Click the Sales territory series and set the Chart Type property to Line.
   Note: The column chart becomes a combination chart because you render the sales territory data as lines.
2. Click the chart, click the Palette property, and select Contemporary from the Palette list.
3. Set the Size & Overflow property width to 600 px.
4. Set the Title property to Show.
5. Double-click the chart title and type the following text:
   Product Lines: Revenue by Retailer Type and Sales Territory
6. Set the Font property for the chart title to Arial, 12pt, Bold.
7. Expand Axis titles, click the horizontal axis title, and set the Visible property to No.

Steps to Specify the Drill Behavior
1. From the Data menu, click Drill Behavior.
2. Select the Allow drill-up and drill-down check box.
3. Run the dashboard to view what it will look like for your users.
   Users can drill up or drill down on values in the report to view related information.

Need More Help?
- Choose a Report Template
- Add Data to a Report
- Working with Dimensional Data
- Specify the Properties of a Gauge Chart
- Specify the Height and Width
- Specify the Font
- Example - Customize the Axis Titles
- Create a Drill-up/Drill-down Report

Try It Yourself - Create a Dynamic Report That Shows Period-to-date Data

When you are working with a dimensional data source, you can use dimensional functions to retrieve data for a specific period-to-date.

In this topic, you learn how to create a dynamic report that retrieves year-to-date revenue for each product line. The report also shows the percentage of the revenue generated in the month users select when they run the report.

It should take 15-20 minutes to complete this topic, and your report will look like this.

<table>
<thead>
<tr>
<th></th>
<th>2006/2007</th>
<th>YTD Revenue for 2006/2007</th>
<th>Percent of YTD Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camping Equipment</td>
<td>$4,675,510.86</td>
<td>$8,162,850.72</td>
<td>46.52%</td>
</tr>
<tr>
<td>Golf Equipment</td>
<td>$1,073,790.74</td>
<td>$1,798,219.58</td>
<td>35.98%</td>
</tr>
<tr>
<td>Mountaineering Equipment</td>
<td>$1,125,875.28</td>
<td>$1,848,903.76</td>
<td>61.44%</td>
</tr>
<tr>
<td>Outdoor Protection</td>
<td>$70,176.00</td>
<td>$121,900.90</td>
<td>57.52%</td>
</tr>
<tr>
<td>Personal Accessories</td>
<td>$1,146,224.42</td>
<td>$2,278,711.36</td>
<td>50.31%</td>
</tr>
</tbody>
</table>

Steps to Create the Report
1. Create a crosstab report that uses the sample package named Great Outdoors Company.
2. Add the following data items to the report:
   - Product line level (in Products) to the Rows drop zone
   - Revenue (in Measures) to the Measures drop zone
   
   Tip: Use the source tab in the Insertable Objects pane.
3. Create this query calculation named Selected Month in the Columns drop zone:
   great_outdoors_company].[Years].[Years].[Month] =>?Month?
4. Create this query calculation named Year to Date Set next to the Selected Month column:
   periodsToDate([great_outdoors_company].[Years],[Years],[Year],[Selected Month])
Chapter 6: Try It Yourself Exercises

Tip: For information about the `periodsToDate` function, click the function in the functions tab. It is located in the M-Q folder in the Common Functions folder.

5. Click the Year to Date Set column and click the cut button.

6. Create this query calculation named YTD Revenue next to the Selected Month column:
   \[ \text{total}(\text{currentMeasure within set[Year to Date Set]}) \]

7. Create this query calculation named Percent of YTD Revenue next to the YTD Revenue column:
   \[ \frac{[\text{Selected Month}]}{[\text{YTD Revenue}]} \]

**Steps to Format the Report**

1. Click the lock/unlock button to unlock the report.
2. Add this text item to the left of the text in the YTD Revenue column, and add a blank space after the text:
   YTD Revenue for
3. Set the font style of the text to italic.
4. In the YTD Revenue column, click `<#YTD Revenue#>` and change the Source Type property to Report Expression.
5. Double-click the Report Expression property and drag the Month parameter to the Expression Definition box.
   Tip: You can find the Month parameter in the parameters tab.
6. Click the lock/unlock button to lock the report.
7. Right-click the Percent of YTD Revenue column title and click Fact Cells for "Percent of YTD Revenue".
8. In the Properties pane, double-click the Data Format property.
10. Set the No. of Decimals property to 2.
11. Run the report to view what it will look like for your users.

   Users are prompted to select a month. When they click OK, the report shows year-to-date revenue for each product line and the percentage of revenue generated for the selected month.

**Need More Help?**

- Choose a Report Template
- Add Data to a Report
- Working with Dimensional Data
- Using the Expression Editor
- Format Crosstabs
- Specify the Font
- Format Data

**Try It Yourself - Create a Report with Drill-through Access to Itself**

Create a report that drills to itself so that users can view detailed information in the same report.

In this topic, you learn how to create a report that shows revenue by each retailer. Users can access detailed order information for a particular retailer.

It should take 20-25 minutes to complete this topic, and your report will look like this.
Steps to Create the Report and Add Data
1. Create a new blank report that uses the sample package named GO Sales and Retailers.
2. Add a table with two columns and one row.
3. Add a list object to each column in the table.
4. Add these data items to the first list:
   - Retailer name (in Retailers)
   - Revenue (in Orders)
   Tip: Use the source tab in the Insertable Objects pane.
5. Set the sort order for the Retailer name column to Sort Ascending.
6. Add Retailer name in Retailers to the second list.
7. Add these data items from the Orders folder to the second list:
   - Order number
   - Order date
   - Product name
   - Quantity
   - Revenue
   Tip: To simultaneously add all the data items to the list, press Ctrl+click and select the items before dragging them to the list.
8. In the second list, click the Retailer name column and click the cut button.
9. In the second list, create the following parameterized filter:
   [Retailer name] = ?Selected retailer?
10. Save the report.

Steps to Set up Drill-through Access
1. In the left list, right-click a Retailer name column (and not the column title) and click Drill throughs.
2. Create a new drill-through definition.
3. Specify the report as the target report.
4. Under Parameters, click the edit button.
5. Set the Selected retailer parameter to pass data item values using the Retailer name data item.
Steps to Add a Prompt
1. In the toolbox tab, add a value prompt under the table. Because you are setting up drill-through access to the same report, you must add a prompt with a default value so that users are not prompted when they run the report.
2. In the Prompt Wizard, specify that the prompt is to use the existing parameter named Selected retailer, and click Finish.
3. Click the value prompt.
4. In the Properties pane, double-click the Default Selections property and add a simple selection named NoRetailer.
5. Set the following properties:
   • Required to No
   • Hide Adornments to Yes
   • Visible to No

Steps to Add a Dynamic Report Title
1. Double-click the report title and type the following text, adding a blank space at the end:
   Order Details for
2. In the toolbox tab, add the following layout calculation to the right of the report title:
   if(ParamDisplayValue('Selected retailer')='NoRetailer') then 'All Retailers' else
   (ParamDisplayValue('Selected retailer'))
   When the report is run, the report title changes to reflect the retailer selected by the user. If no retailer is selected, 'All Retailers' appears.
3. Click the layout calculation and, in the Properties pane, set the class to Report title text.

Steps to Add Conditional Formatting
1. Pause the pointer over the condition explorer button and click Variables.
   Use conditional formatting to show a message above the second list when users have not selected a retailer from the first list.
2. Create this boolean variable named HighLevel:
   ParamDisplayValue('Selected retailer')<>'NoRetailer'
3. Pause the pointer over the page explorer button and click Page1.
4. In the toolbox tab, add a block above the second list.
5. Insert a text item in the block with the following text:
   Select a retailer in the left list to view order details below
6. Set the font style for the text to bold.
7. Click the text item and, in the Properties pane, set the Style Variable property to the HighLevel variable.
8. Pause the pointer over the condition explorer and click the Yes value for the HighLevel variable.
9. Set the Visible property for the text item to No.
10. Triple-click the explorer bar to turn off conditional formatting.
11. Run the report to view what it will look like for your users.
   A list appears on the left that shows revenue for each retailer. When users click a retailer, order information for the selected retailer appears in the second list.

Need More Help?
• Use Tables to Control Where Objects Appear
• Add Data to a Report
• Create a Parameter to Produce a Prompt
• Set Up Drill-through Access in a Report
• Create a Prompt Directly in a Report Page
• Create a Calculation
• Using the Expression Editor
• Add a Variable
• Hide and Show Objects
Appendix A: Troubleshooting

This chapter describes some common problems you may encounter. For more troubleshooting problems, see the Troubleshooting Guide.

A Web Server Error When Trying to Browse Images

When you want to insert an image into a report and you try to browse to the location (URL) where the image is located, an error message like the one below appears:

Web server error:
501 Not Implemented

To browse images on a Web server, you must enable Web-based Distributed Authoring and Versioning (WebDAV) on your Web server.

Note: iPlanet Web server does not support WebDAV.

Steps to Enable WebDAV
1. If you are using an Apache Web server, configure WebDAV for your server. For more information, see the Apache documentation.
2. If you are using Microsoft Internet Information Services (IIS), enable the Read and Directory Browsing properties for the URL you want to access:
   - Open the Control Panel and double-click Internet Services Manager.
   - Right-click the directory that points to the folder containing the image you want to insert and click Properties. If no directory exists for the folder, create one and point it to the folder.
   - In the Virtual Directory or Directory tab, select the Read and Directory Browsing check boxes and click OK.
3. To confirm that WebDAV is configured correctly, use Internet Explorer as a WebDAV client:
   - In Internet Explorer, from the File menu, click Open.
   - In the Open box, type the URL containing the images you want to browse.
   - Select the Open as a Web Folder check box.
   - Click OK.
   If the folder opens successfully, WebDAV is configured correctly.

Values Not Recognized in Multilingual Query Items

A report may be created in one language, and then run in a different language. When you filter for specific values on multilingual query items, the filter does not recognize the values because they exist only in the original language.

When creating filters in multilingual reports, try to use non-multilingual query items, such as numerical identifiers, for the search criteria, because they are applicable in all languages. For example, use the product code rather than a multilingual product name.
Appendix A: Troubleshooting

Changes in the Model Are Not Reflected in the Report If Model Versioning Is Used

If you make changes to the model in Framework Manager and republish the package, you may not see the changes when you run the report. This is because the version of the model has changed.

When you republish a model, you are adding a new version of the model to the package. When you run a report, the report uses the model that it was initially created with or last edited with.

To correct the problem, do one of the following:

• Edit the report and then save it.
  The report is set to the latest version of the model.
• Before you republish the model in Framework Manager, in the Publish wizard, select the option Delete all previous model versions.
  All reports linked to the model are moved to the latest version of the model.
• Before you republish the model in Framework Manager, in the Publish wizard, set the model version limit to 1.
  Model versioning is disabled.

Problems When Printing a PDF Manual

You print a document in PDF format, but the print job is incomplete. For example, the job stops printing when it reaches a particular graphic. This is an Adobe Acrobat Reader issue that can occur when printing some PDFs using some versions of Acrobat Reader and some printer models. The same PDF may print correctly under one or both of the following conditions:

• using a different version of Acrobat Reader
• using a different printer

If you print from an Acrobat 4.0 or later product, you can try the following solution.

Steps to Force a Page to Print as an Image

1. In Acrobat Reader, from the File menu, click Print.
2. In the Printer section, select the Print as image check box.
   Because files print more slowly using this option, make sure you specify only the nonprinting page.
3. In the Print Range section, click Pages from and Pages to, type only the page number of the nonprinting page, and then click OK.
   You can print the rest of the PDF by resending the job starting on the next page.
4. Clear the Print as image check box.
5. In the Print Range section, click Pages from and Pages to, type the page range for the remaining pages, and then click OK.
   Although you can use the Print as image option to print the file, this setting does not resolve the original printing problem. For more information, see the Adobe Web site.

A Running Total in Grouped Reports Gives Unexpected Results

You have a running total calculation in a grouped report that returns unexpected values.

Because tabulation of the running total calculation depends on the order in which the grouping is executed, you must ensure that the grouped totals are tabulated before applying the running total.
To ensure that the grouping is executed in correct order, define a running total calculation as a freestanding calculation outside the query subject in Framework Manager, and ensure that the Regular Aggregate property is set to Automatic.

This may also be an issue with other running, moving, and ranking aggregations.

**The java.lang.OutOfMemory Error Message Appears in Cognos Connection or Report Studio**

When working in Cognos Connection or Report Studio, this java error message may appear if not enough memory is allocated to the dispatcher.

**Steps to Increase the Memory Allocated to the Dispatcher**

1. Start Cognos Configuration.
2. Stop the Cognos 8 service.
3. In the Explorer window, under Environment, Cognos 8 service, click Cognos 8.
4. Click the Value box next to the Dispatcher maximum memory in MB property and type a new value.
   - We recommend you change the value to 768.
5. From the File menu, click Save.
6. Restart the Cognos 8 service.

**Report Studio Does Not Start**

You may not be able to start Report Studio if you are using pop-up blocking software on your computer.

When you start Report Studio, it opens in a new browser window. In addition, a new browser window opens when you run a report and when an error is detected.

To correct the problem, disable any pop-up blocking software when working in Report Studio.

**A Report is Not Rendered Properly**

In Report Studio, if a report uses empty blocks, table rows, or table columns to space the report components, the report may not render properly.

The recommended way to add spaces between report components is to define the padding or margin properties for the objects. If you use empty blocks, table rows, or table columns, define a height or width for them.

**Unable to Delete a Prompt**

You delete a prompt from the design page of a report. When you run the report, the prompt still appears.

The prompt continues to appear because it is saved to the query filter, and not the design page. You must delete the prompt from the query filter.

**Steps**

1. From the Data menu, click Filters.
2. Select the prompt you wish to delete, then click Delete.
3. Click OK.
4. Run the report.
Appendix A: Troubleshooting
Appendix B: Samples

Cognos 8 includes sample reports. When installed, you can find them in the Public Folders tab in Cognos Connection.

Sample Reports in the GO Sales Package

The following reports are found in the GO Sales and Retailers package.

Conditional Display

The report uses a prompt page to query a chart and a list report.

Custom Legend

The report shows that the legend can be customized in a similar way to the titles.

Orders Report

This report shows the default style applied to List Column Title and the List Column Body in a single step.

Product Report

The report displays combination charts with drill through options.

Retailer Report (Multiple Prompt Values)

List report that accepts multiple prompt values.

Returns by Order Method - Prompted Chart

This report uses a bar chart and a list to show the reasons why products are returned. It uses a prompt to filter on the return description. It is illustrated in the Getting Started tutorial.

Revenue by Sales Territory

The report shows a chart and a crosstab display with conditional formatting that drills through to the Orders Report report.

Top 5 Sales Staff

List report that embeds a bar chart that shows the top five sales representatives by sales targets and revenue.

Top Revenue (Conditional)

List report that conditionally hides the Product Line group footers for the revenue lower than the specified value.
Appendix B: Samples

Sample Reports in the GO Sales and Retailers Package

The following reports are found in the GO Sales and Retailers package.

Actual Sales Against Target Sales

Report showing a simple list with conditional formatting that drills through to the Sales Representative Contact List report.

Actual Sales Against Target Sales - Burst

Report that is set up for bursting to email addresses. The email addresses point to sales representatives in the Sales reps table in the GOSales database.

Banded Report

Banded report that shows Product name, Quantity, and Revenue with sales opportunities for each Product line category.

Basket Analysis with Total Contribution (Top 10 Rank)

Pairing analysis report that uses prompts to compare two products. Orders are totaled and ranked, and the top ten orders are shown.

Business Details Drill Through

Report that shows product details in charts. This report is a drill-through target report for the GO Business View report. You can also run it as a product-promoted report.

Consumer Trends

Complex report that shows a list chart, bar chart and product images to illustrate revenue by product type.

Cost of Goods

Crosstab report illustrating conditional formatting.

Custom Grouping

Report showing the ability to group products with conditional statements. For example, show all products that start with the letter S.

Customer Invoice


Global Sales

Book style report that uses multiple pages and charts to show global sales results.

Global Sales (1)

A cut down version of the Global Sales report. It is discussed in the section Try It Yourself - Create a Multiple-Page Report (p. 188).
Appendix B: Samples

**GO Business View**

Two-page business report showing a combination of metrics across the Great Outdoors company. Multiple charting types are used.

**GO Media**

Report that uses a media file in combination with multiple charting types.

**Mailing Labels**

Template style report illustrating a multilingual mailing list for retailers of the Great Outdoors company.

**Margin Cost and Volume Report**

Report showing volume and production cost using various chart types. The report drills through on Product line.

**Multi-Grain Fact**

Report that reads two fact tables, each at different levels of granularity, and combines them. Bookmarks are used to permit easy navigation within the report.

**Multiple Charts**

Report showing similar information on one page using multiple chart types. Visual representation of metrics.

**Order Analysis**

Pairing analysis report that prompts the user for two products, and shows the orders that they both appear in.

**Percent Contribution by Country**

Report showing the percentage of products sold by country as well as a percentage comparison across other countries. Bookmarks are used for easy navigation throughout the report.

**Product Comparison Charts**

Report using multiple charts to reveal trends and relationships that are not evident in tabular reports. For more information, see Try It Yourself - Create Charts (p. 175).

**Product Line by Year**

Nested line chart. For more information, see Try It Yourself - Add Prompts (p. 187).

**Product Line by Year-Prompt**

Report illustrating the use of adding a prompt to an existing report. For more information, see Try It Yourself - Add Prompts (p. 187).

**Product Revenue**

Group list report that uses a list header. For more information, see Try It Yourself - Create a List Report (p. 173).
Appendix B: Samples

**Product Revenue - Lifetime/Q2**
Pairing analysis report showing lifetime revenue for each product with sales from Q2 in 2002.

**Product Summary**
Report that uses a prompt page to query a list.

**Products Ranked by Revenue**
Pairing analysis report that prompts the user to select a product, order year, and revenue. The results are ranked by revenue.

**Quantity by Retailer**
Grouped list report that drills through to the Retailer Contact report. Part of the Report Studio Tour.

**Regional Orders**
Report showing order quantity by country, using bookmarks for navigation. The report is the drill-through target report for the Margin Cost and Volume report.

**Report with Totals**
List report that uses prompts to show product sales by date and product value lifetime contribution.

**Retailer Contact**
List report that uses a prompt page. It is also used as a drill-through report.

**Retailer Contact (Multiple Prompt Values)**
List report that accepts multiple prompt values. It is referenced by the Event Studio *User Guide* and the Event Studio Quick Tour.

**Returns by Order Method**
Report showing the percentage lost by return orders.

**Revenue by Date and Amount**
Pairing analysis report showing revenues in a specified month whose life to date revenues exceed a specified amount.

**Sales Representative Contact List**
Report illustrating multiple prompt styles on the same report page. It is also used as a drill-through report.

**Sales Reps Performance**
Report using a text prompt to query the performance of all sales reps by lowest percentage of sales.
**Union Crosstab**

Report using tabular table joins to create a complex crosstab.

**Waterfall Chart**

Waterfall and pareto charts used in combination with a crosstab to show various metrics. Hover with your mouse over Product line to see Product line images.

**Sample Reports in the GO Data Warehouse Package**

The following reports are found in the GO Data Warehouse package.

**Current Assets**

Multiple-page report showing the assets of the Great Outdoors Company. From this report, you can drill through to the Current Liabilities report.

**Current Liabilities**


**Employee Profile**

Human resources report showing data for each employee.

**Sales Target by Region**

Report showing sales target by region, using a prompt to provide values for the report.

**Tool Tips**

Report that shows tool tips and baselines in chart.

**Sample Reports in the Great Outdoors Company Package**

The following reports are found in the Great Outdoors Company package.

**Margins and Revenue Map for United States**

Map report that shows revenue and margins for each sales branch in the United States.

**Product Cost by Years**

Report that shows product details using a 3-D combination chart and a crosstab display. It is a drill-through target for the Product Report sample in the Analysis Studio Samples folder.

**Profit and Revenue Combination Chart**

Combination bar chart and line-with-markers chart that shows revenue and gross profit. It also shows the totals for product lines by year.

**Revenue by Product Line**

Report that uses conditional formatting to highlight revenue. You can also drill through to an Analysis Studio report.
Appendix B: Samples

**Revenue by Sales Branch**

List report that shows revenue by country, sales branch and sales staff.

**Revenue by Year over Year Growth**

Stacked column chart that shows year-over-year growth. The list report shows revenue growth by product line and year.

**Revenue Chart by Sales Territory and Year**

Report that contains a chart that compares the revenue contribution of different sales territories to the series total by year. The data is also included in a list report.

**Revenue for Specified Order Method and Sales Territory**

Report that shows revenue filtered by year, product line, order method and sales territory.

**Sales Territory Map**

Report that uses a map-style chart to show revenue by sales territory. You can drill through to different reports in Report Studio.

**Slicers Filters**

Report that shows dimensional filters applied to the cells of the crosstab but not the rows or columns.
Appendix C: Chart Types

Charts are a graphical way of presenting data. For example, you can create a chart to visualize how actual sales compare to projected sales, or to discover whether sales are falling or rising over quarterly periods.

Chart Elements
This column chart shows the most common chart elements. You can add extra elements such as baselines and notes using Report Studio.

Axes
Axes are lines that provide a frame of reference for measurement or comparison. The y-axis refers to measures of quantitative data, such as sales figures or quantities. Charts may have more than one y-axis. The x-axis or ordinal axis plots qualitative data, such as products or regions. It runs horizontally, except in bar charts. The z-axis is the vertical axis in a 3-D chart.

Gridlines
Axes are lines that provide a frame of reference for measurement or comparison. Major gridlines extend from the tick marks on an axis and run behind the data markers.

Data Series
A data series is a group of related data points plotted in a chart. Each series has a unique color or pattern and is described in the legend. In the example chart, the data series are order years 2004, 2005, and 2006.

Legend
A legend is a key to the patterns or colors assigned to the data series or categories in a chart.

Categories
Categories are groups of related data from the data series, plotted on the x-axis. Categories of multiple data series are shown together using clustered and stacked data markers.
In the example chart, the categories are the product lines of The Great Outdoors Company, in clustered columns.

**Columns, Lines, and Areas**
Charts use columns, lines, and areas as visual representations of data points. Other examples of visual representations include horizontal bars, points, and bubbles.

**Choosing a Chart Type and Configuration**
To choose a chart type, consider what you want the chart to illustrate. Different chart types and configurations emphasize different things.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Chart type or configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show contributions of parts to a whole</td>
<td>pie</td>
</tr>
<tr>
<td></td>
<td>stacked configuration</td>
</tr>
<tr>
<td></td>
<td>100% stacked configuration</td>
</tr>
<tr>
<td>Show trends in time or contrast values across different categories</td>
<td>line</td>
</tr>
<tr>
<td></td>
<td>area</td>
</tr>
<tr>
<td></td>
<td>bar</td>
</tr>
<tr>
<td></td>
<td>column</td>
</tr>
<tr>
<td>Compare groups of related information against actual values</td>
<td>standard configuration</td>
</tr>
<tr>
<td></td>
<td>radar</td>
</tr>
<tr>
<td></td>
<td>3D</td>
</tr>
<tr>
<td>Compare different kinds of quantitative information</td>
<td>column-line</td>
</tr>
</tbody>
</table>

**Pie Charts**
Pie charts are useful for highlighting proportions.

Pie charts use segments of a circle to show the relationship of parts to the whole. To highlight actual values, we recommend that you use another chart type, such as a stacked chart.

Pie charts plot a single data series. To avoid multiple pies when plotting multiple data series, we recommend that you use a 100% stacked chart.

The maximum number of pies that can be shown is 16.

This pie chart shows that the largest proportion of revenue comes from the Americas, followed closely by the Central Europe region.
Pie charts can plot data using standard, 100%, and 3D configurations.

**Column Charts**

Column charts are useful to compare discrete data or to show trends over time. Column charts use vertical data markers to compare individual values.

This column chart uses actual values to show the revenue for each product line.

Column charts can plot data using standard, stacked, 100% stacked, and 3D configurations.

**Progressive Column Charts**

Progressive column charts are like stacked charts with each segment of a single stack displaced vertically from the next segment.

Progressive column charts are useful for emphasizing the contribution of the individual segments to the whole.

Progressive column charts are also known as waterfall charts.

This progressive column chart analyzes the contribution of each product line to revenue.
Progressive column charts can plot data using standard and 3D configurations. You can also create progressive charts using horizontal bars.

**Pareto Charts**

Pareto charts are useful for prioritizing and focusing process changes.

Pareto charts rank categories from the most frequent to the least frequent. It is more effective to act on the most frequent causes of events than to solve an easy yet infrequent issue.

You can create before and after comparisons of Pareto charts to show the impact of corrective actions.

This Pareto chart shows that the most frequent reason for product returns is unsatisfactory product.

You can also create Pareto charts using horizontal bars.

**Bar Charts**

Bar charts are useful for showing trends over time and for charts that plot many data series. Bar charts use horizontal data markers to compare individual values.

This bar chart shows actual revenue for every country.
Bar charts can plot data using standard, stacked, and 100% stacked configurations.

**Line Charts**

Line charts are useful for showing trends over time and for charts with many data series. Line charts plot data at regular points connected by lines. We do not recommend that you use stacked line charts because they are difficult to distinguish from unstacked line charts using multiple data series. This line chart shows a rising revenue trend in every territory.

Line charts can plot data using standard, stacked, 100% stacked, and 3D configurations.

**Area Charts**

Area charts are useful for emphasizing the magnitude of change over time. Stacked area charts are also used to show the relationship of parts to the whole. Area charts are like line charts that have the areas below the lines filled with colors or patterns. We do not recommend that you use standard area charts in a chart that has multiple data series because it is possible for areas with lower values to be covered by others. This stacked area chart shows the quantity of products sold over a two-year period in multiple territories.
Appendix C: Chart Types

Area charts can plot data using standard, stacked, 100% stacked, and 3D configurations.

**Combination Charts**

Combination charts are useful for plotting multiple data series by using combinations of columns, areas, and lines.

This combination chart shows planned revenue as a column chart and actual revenue as an area chart.

Combination charts can plot data using standard, stacked, 100% stacked, and 3D configurations.

**Radar Charts**

Radar charts are useful as a comparative tool and for charts with few data series.

Radar charts integrate multiple axes into a single radial figure. Data is plotted on each axis and joined to adjacent axes by connecting lines.

This radar chart shows the revenue from multiple retailer types in multiple territories.
Radar charts can plot data using **standard** and **stacked** configurations.

### Scatter Charts

Scatter charts use data points to plot two measures anywhere along a scale, not only at regular tick marks.

Scatter charts are useful for exploring correlations between different sets of data.

This scatter chart shows the correlation between production cost and gross profit for each product line.

### Bubble Charts

Bubble charts use data points and bubbles to plot measures anywhere along a scale, like scatter charts. The size of the bubble represents a third measure.

Bubble charts are useful for visually representing financial data.

This bubble chart plots quantity and revenue by product line. The size of the bubble represents gross profit.
Appendix C: Chart Types

**Point Charts**

Point charts are useful for showing quantitative data in an uncluttered fashion. Point charts use multiple points to plot data along an ordinal axis. A point chart is similar to a line chart without the lines. Only the data points are shown. This point chart shows the revenue for each product line.

**Quadrant Charts**

Quadrant charts are useful for plotting data that contains three measures, using an x-axis, a y-axis, and a bubble size that represents the value of the third measure. Quadrant charts are like bubble charts divided into four equal sections. Use a quadrant chart to present data that can be categorized into quadrants, such as a SWOT (strengths, weaknesses, opportunities, and threats) analysis. This quadrant chart shows the relationship between production cost and gross profit. The size of the bubble represents quantity.
Polar Charts

Polar charts are useful for showing scientific data.

Polar charts are circular charts that use values and angles to show information as polar coordinates.

This polar chart shows the revenue and quantity for each product line. The distance along the radial axis represents revenue while the angle around the polar axis represents quantity.

Metrics Range Charts

Metric range charts are useful for showing a target range and a tolerance range.

A metric range chart adds a target and range marker to a column, line, or area chart.

This metric range chart shows actual revenue versus planned revenue.
Appendix C: Chart Types

Gauge Charts

Gauge charts are useful for comparing values between a small number of variables either by using multiple needles on the same gauge or by using multiple gauges.

Gauge charts use needles to show information as a reading on a dial. The value for each needle is easily read against the colored data range.

This gauge chart shows the revenue and planned revenue for each sales territory.

Chart Configurations

Chart configurations specify the grouping type of the columns, bars, lines, and areas in a chart. Some examples are standard, stacked, and 100% stacked charts.
**Standard Charts**

Standard - or absolute - charts are useful for comparing specific values and for representing discrete data, such as different regions or individual employees. For example, a standard column chart that plots regional sales emphasizes the actual value that each region achieves in sales.

Standard charts plot the actual value of each data series from a common axis.

When you create charts using multiple data series, you can distinguish each series by the color or pattern of its data marker. Related data series are shown together in clusters for easy comparison.

In area and radar charts that have multiple data series, areas with lower values may be covered by others.

This clustered column chart shows the revenue values for each product line within each territory.

**Stacked Charts**

Stacked charts are useful for comparing proportional contribution within a category. They plot the relative value that each data series contributes to the total. For example, a stacked column chart that plots product line sales will emphasize the proportion that each product line contributes to the total in each territory.

You can distinguish each data series by the color or pattern of its section in the stack. The top of each stack represents the accumulated totals for each category.

We recommend that you do not use the stacked configuration in line charts that have multiple data series because it is difficult to distinguish between standard and stacked configurations.

This stacked column chart shows the high proportion that camping equipment contributed to the actual revenue in most markets.
Appendix C: Chart Types

100% Stacked Charts

100% stacked charts are useful for comparing proportional contribution across all categories. They plot the relative contribution of each data series to the total, expressed as a percentage. For example, a 100% stacked column chart that plots product line sales emphasizes the percentage within each region without referring to actual values.

You can distinguish each data series by the color or pattern of its section in the stack. Each stack represents 100 per cent.

100% stacked charts highlight proportions. When actual values are important, we recommend that you use another chart configuration.

This 100% stacked chart shows the percentage of sales for each product line in each region.

3-D Charts

3-D charts are useful for creating charts with high visual content, such as graphics for use in presentations.

3-D column, bar, line, and area charts plot data by using three axes.

3-D pie charts have a three-dimensional visual effect.

We recommend that you do not use 3-D charts where there is a need to show exact values, such as for control or monitoring purposes. The distortion in 3-D charts can make them difficult to read accurately.

This 3-D chart shows actual revenue for each product line in each territory. Note the skipping of the labels on the x and y axes.
Appendix D: Using the Expression Editor

An expression is any combination of operators, constants, functions, and other components that evaluates to a single value. You build expressions to create calculation and filter definitions. A calculation is an expression that you use to create a new value from existing values contained within a data item. A filter is an expression that you use to retrieve a specific subset of records.

The Expression Editor shows the expression components that are supported by the data source in which the metadata is stored. For example, if you import metadata from an Oracle data source, the Expression Editor shows only the elements that are supported in Oracle.

When creating an expression that will be used in a double-byte environment, such as Japanese, the only special characters that will work are ASCII-7 and ~ - || $ € £ ¬.

Not all data sources support functions the same way. The data modeler can set a quality of service indicator on functions to give a visual clue about the behavior of the functions. Report authors can use the quality of service indicators to determine which functions to use in a report. The quality of service indicators are:

- not available (X)
  This function is not available for any data sources in the package
- limited availability (!!)
  The function is not available for some data sources in the package
- poor performance (!)
  The function is available for all data sources in the package but may have poor performance in some data sources
- unconstrained (no symbol)
  The function is available for all data sources

**SAP BW Support**

SAP BW does not support all operators or summaries. This can be confusing if you have imported SAP BW metadata and non-SAP BW metadata into the same model.

SAP BW does not support the following operators:

- like
- lookup

SAP BW does not support the following member summaries:

- date-time
- interval
- interval month
- interval day
- interval day to hour
- interval day to minute
- interval day to second
- interval hour
- interval hour to minute
- interval hour to second
- interval minute
- interval minute to second
- interval second
- interval year
Appendix D: Using the Expression Editor

- interval year to month
- time with time zone
- timestamp with time zone

Cell values are date, number, or time. Attribute values are strings.

Creating Expressions Using SAP BW Data Sources

You must consider the following when creating expressions using an SAP BW data source, or you may not get the results you expect:

- The case and if/then/else constructs are not supported in calculations and filters.
- The query item identifier of the leaf-level of the 0CALDAY characteristic and its presentation hierarchies is of type date. When the values for the query item identifier are presented in Report Studio, they are formatted as dates. These formatted values should not be used in filter expressions. The correct date constant format for use in expressions is YYYY-MM-DD.
- You can apply a comparison expression with an operator other than equals to a query item that represents a level identifier. However, level identifiers are more efficient for identifying specific values. Range comparisons must be performed on the Cognos 8 application server, which slows down the performance of the report.

Browse the Data of a Data Item

When building expressions in the expression editor, you can browse the data of a data item. This is useful when you do not know how a particular value is stored in the database. For example, you want to filter a report so that it shows data for only China. The actual value in the database for China is The People’s Republic of China, and this is what you must insert in the filter expression to obtain the correct results.

Steps

1. If you are using a dimensional data source, do the following:
   - In the source, data items, or query tab, right-click the data item you want to browse and click Search.
   - Search for the members you want (p. 32).
   - On the search tab, drag the members you want to the Expression Definition box and click OK.
2. If you are using a relational data source, do the following:
   - In the source, data items, or query tab, right-click the data item you want to browse.
   - If you want to insert a single value, click Select Value.
   - If you want to insert multiple values, click Select Multiple Values.
   - In the Values box, click the value you want to insert in the expression.
     Tip: Use the Words box to search for specific values. If the data source is case sensitive and you want to perform a case insensitive search, click the Search arrow and then click Case insensitive.
   - If you clicked multiple values, click the right arrow button to add them to the Selected values box.
   - Click Insert.
     Tip: To control where the values appear in the Expression Definition box, click the copy button instead. The values are copied to the clipboard, and you can then paste them where you want.

Using Quotation Marks in Literal Strings

When inserting literal strings in an expression, you must enclose the string in single quotation marks. If the string contains a quotation mark, it must be escaped. For example, if you want to insert the string ab’c, you must type 'ab''c'.
Recommendation - Use Member Unique Name (MUN) Aliases

If you are working with a dimensional data source, use MUN aliases to simplify building reports and expressions. In addition, you can tie the MUN back to the member in the package.

When working with dimensional data sources, Cognos 8 uses MUNs to uniquely identify members. MUNs are very complex. For example, the MUN for the member 2004 might appear as follows:

```
[Great_Outdoors_Company].[Years].[Years].[Year]->:[PC].[Years (Root)].[20040101-20041231]
```

When you are building expressions that involve members, the use of MUNs makes these expressions difficult to read and maintain.

**Tip:** To view the MUN of a member, in the Insertable Objects pane, on the source tab, right-click the member and click Properties.

Report Studio has an option that automatically generates an alias for MUNs (p. 28). The MUN alias is a data item that has the MUN as its definition. For the previous example, you would see 2004 as the data item, and the MUN would appear in the data item's Expression property. Enable this option to produce a MUN alias whenever you add a member to a report or expression.

**Note:** Do not modify or rename MUN aliases, because they will lose their connection to their respective members in the package.

Running a Report That Contains Members

If you are using members in a report and your modeler has updated the data source in a way that changes member unique names, the following problems may arise when you run the report.

- If the report queries an OLAP data source, you receive an error message explaining that some specific members cannot be found.
- If the report queries a Dimensionally Modeled Relational (DMR) data source, data items whose member unique names have changed do not appear in the report. Calculations that refer to members that have changed no longer contain values from the members.

To resolve these problems, you must update the member unique names in the report. Open the query that contains the members that you need to update in Query Explorer. Delete the member from the pane in which it appears and reinsert it from the source tab. For example, if you inserted the member as a detail filter, delete it from the Detail Filters pane and reinsert it.

Functions Not Available When Creating a Report or Layout Expression

When you create a report expression or a calculation based on a layout expression, unsupported functions do not appear in the functions tab of the expression editor. Specifically, there is no Summaries folder, and some operators, constants, and constructs are also unavailable. These functions are not available because only the database can perform them. Report expressions and calculations based on layout expressions are performed in Report Studio.

To see the complete list of functions available in the expression editor, except for report functions, create a detail or group calculation. All functions are available when you create a detail or group calculation because these calculations are performed in the database and not in Report Studio.

Concatenating Strings

When Cognos 8 concatenates strings locally and if any of the involved strings contain null values, the result of the concatenation is an empty cell or a null value. This occurs because Cognos 8 requires that an expression that involves a null value returns a null value. Many databases ignore null strings when they perform concatenations. For example, if you concatenate strings A, B, and C, and if string B is a null value, the database may concatenate only strings A and C.

Operators

Operators specify what happens to the values on either side of the operator. Operators are similar to functions, in that they manipulate data items and return a result.
Appendix D: Using the Expression Editor

(                          
Inserts an open parenthesis in your expression.

**Syntax**
(expression)

)                          
Inserts a closed parenthesis in your expression.

**Syntax**
(expression)

*                          
Multiplies two numeric values.

**Syntax**
(value1 * value2)

,                          
Separates expression components.

**Syntax**
(expression(param1, param2))

/                          
Divides two numeric values.

**Syntax**
(value1 / value2)

||                         
Concatenates strings.

**Syntax**
(string1 || string2)

+                          
Adds two values.

**Syntax**
(value1 + value2)

-                          
Subtracts two numeric values or negates a numeric value.

**Syntax**
(value1 - value2)
or
- value

<                          
Compares values against a defined value and retrieves the values that are less than the defined value.
**Syntax**
value1 < value2

\texttt{<=}

Compares values against a defined value and retrieves the values that are less than or equal to the defined value.

**Syntax**
value1 <= value2

\texttt{<>}

Compares values against a defined value and retrieves the values that are not equal to the defined value.

**Syntax**
value1 <> value2

\texttt{=}

Compares values against a defined value and retrieves the values that are equal to the defined value.

**Syntax**
value1 = value2

\texttt{>}

Compares values against a defined value and retrieves the values that are greater than the defined value.

**Syntax**
value1 > value2

\texttt{->}

Used as a separator in a literal member expression.

**Syntax**
[namespace].[dimension].[hierarchy].[level]->[L1]

\texttt{>=}

Compares values against a defined value and retrieves the values that are greater than or equal to the defined value.

**Syntax**
value1 >= value2

\texttt{and}

Returns true if the conditions on both sides of the expression are true.

**Syntax**
arg1 AND arg2

\texttt{auto}

Use with summary expressions to define the scope to be adjusted based on the grouping columns in the query.
Appendix D: Using the Expression Editor

**Syntax**

aggregate_function ( expression AUTO )

**between**

Determines if a value falls in a given range.

**Syntax**

name BETWEEN value1 and value2

**case**

Use with When, Then, Else, and End.

**Syntax**

CASE expression { WHEN expression THEN expression } [ ELSE expression ] END

**contains**

Determines if a string contains another string.

**Syntax**

string1 CONTAINS string2

**currentMeasure**

Keyword that can be used as the first argument of member summary functions.

**Syntax**

aggregate_function( currentMeasure within set expression )

**default**

Use with LOOKUP construct.

**Syntax**

lookup(....) in (....) DEFAULT(....)

**distinct**

A keyword used in an aggregate expression, to include only distinct occurrences of values. See also the function unique.

**Syntax**

DISTINCT dataItem

**Example**

count ( DISTINCT [OrderDetailQuantity] )

Result: 1704

**else**

Use with If or Case constructs.

**Syntax**

IF (condition) THEN .... ELSE (expression) , or CASE .... ELSE expression END

**end**

Use with Case When construct.
Syntax
CASE .... END

ends with
Determines if a string ends with a given string.

Syntax
string1 ENDS WITH string2

for
Use with summary expressions to define the scope of the aggregation in the query.

Syntax
aggregate_function ( expression FOR expression { , expression } )

for all
Use with summary expressions to define the scope to be all the specified grouping columns in the query. See also FOR clause.

Syntax
aggregate_function ( expression FOR ALL expression { , expression } )

for any
Use with summary expressions to define the scope to be adjusted based on a subset of the grouping columns in the query. Equivalent to FOR clause.

Syntax
aggregate_function ( expression FOR ANY expression { , expression } )

for report
Use with summary expressions to define the scope to be the whole query. See also FOR clause.

Syntax
aggregate_function ( expression FOR REPORT )

if
Use with Then and Else.

Syntax
IF (condition is true) THEN (action) ELSE (alternate action)

in
Determines if a value exists in a given list of values.

Syntax
exp1 IN (exp_list)

in_range
Determines if an item exists in a given list of constant values or ranges.

Syntax
expression IN_RANGE { constant : constant [ , constant : constant ] }
Appendix D: Using the Expression Editor

**is missing**
Determines if a value is undefined in the data.

**Syntax**
value IS MISSING

**is null**
Determines if a value is undefined in the data.

**Syntax**
value IS NULL

**is not missing**
Determines if a value is defined in the data.

**Syntax**
value IS NOT MISSING

**is not null**
Determines if a value is defined in the data.

**Syntax**
value IS NOT NULL

**like**
Determines if a string matches the pattern of another string.

**Syntax**
string1 LIKE string2

**lookup**
Finds and replaces data with a value you specify. It is preferable to use the CASE construct.

**Syntax**
LOOKUP (name) in (value1 --> value2) default (expression)

**Example**
lookup([Country]) in ('Canada'-->([List Price] * 0.60), 'Australia'-->([List Price] * 0.80)) default([List Price])

**not**
Returns true if the condition is false, otherwise returns false.

**Syntax**
NOT arg

**or**
Returns true if either of the two conditions on both sides of the expression is true.

**Syntax**
arg1 OR arg2

**prefilter**
Performs a summary calculation before applying the summary filter.
Syntax
summary ([expression] PREFILTER)

rows
Counts the number of rows output by the query. Use with Count().

Syntax
count(ROWS)

starts with
Determines if a string starts with a given string.

Syntax
string1 STARTS WITH string2

then
Use with If or Case constructs.

Syntax
IF (condition) THEN ...., or CASE expression WHEN expression THEN .... END

when
Use with Case construct.

Syntax
CASE [expression] WHEN .... END

Summaries
This list contains predefined functions that return either a single summary value for a group of related values or a different summary value for each instance of a group of related values.

aggregate
Returns a calculated value using the appropriate aggregation function, based on the aggregation type of the expression.

Syntax
aggregate ( expr [ auto ] )
aggregate ( expr for [ all | any ] expr { , expr } )
aggregate ( expr for report )

average
Returns the average value of selected data items. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

Syntax
average ( [ distinct ] expr [ auto ] )
average ( [ distinct ] expr for [ all | any ] expr { , expr } )
average ( [ distinct ] expr for report )

Example
average ( Sales )
Result: The average of all Sales values.
Appendix D: Using the Expression Editor

**count**

Returns the number of selected data items excluding NULL values. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

count ( [ distinct ] expr [ auto ] )
count ( [ distinct ] expr for [ all | any ] expr { , expr } )
count ( [ distinct ] expr for report )

**Example**

count ( Sales )
Result: The total number of entries under Sales.

**maximum**

Returns the maximum value of selected data items. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

maximum ( [ distinct ] expr [ auto ] )
maximum ( [ distinct ] expr for [ all | any ] expr { , expr } )
maximum ( [ distinct ] expr for report )

**Example**

maximum ( Sales )
Result: The maximum value of all Sales values.

**median**

Returns the median value of selected data items.

**Syntax**

median ( expr [ auto ] )
median ( expr for [ all | any ] expr { , expr } )
median ( expr for report )

**minimum**

Returns the minimum value of selected data items. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

minimum ( [ distinct ] expr [ auto ] )
minimum ( [ distinct ] expr for [ all | any ] expr { , expr } )
minimum ( [ distinct ] expr for report )

**Example**

minimum ( Sales )
Result: The minimum value of all Sales values.

**moving-average**

Returns a moving average by row for a specified set of values of over a specified number of rows. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.
Appendix D: Using the Expression Editor

**Syntax**

```plaintext
moving-average ( numeric_expr, numeric_expr [ at exp [, expr ] ] [ <for-option> ] [ prefilter ] )
moving-average ( [ distinct ] numeric_expr, numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr [, expr ] | for report | auto
```

**Example**

```plaintext
moving-average ( Qty, 3 )
```

Result: For each row, this displays the quantity and a moving average of the current row and the preceding two rows.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Moving-Average (Qty, 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-----</td>
<td>-------------------------</td>
</tr>
<tr>
<td>200</td>
<td>NULL</td>
</tr>
<tr>
<td>700</td>
<td>NULL</td>
</tr>
<tr>
<td>400</td>
<td>433.3333</td>
</tr>
<tr>
<td>200</td>
<td>433.3333</td>
</tr>
<tr>
<td>200</td>
<td>266.6667</td>
</tr>
<tr>
<td>500</td>
<td>300.0000</td>
</tr>
</tbody>
</table>

**moving-total**

Returns a moving total by row for a specified set of values over a specified number of rows. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

```plaintext
moving-total ( numeric_expr, numeric_expr [ at exp [, expr ] ] [ <for-option> ] [ prefilter ] )
moving-total ( [ distinct ] numeric_expr, numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr [, expr ] | for report | auto
```

**Example**

```plaintext
moving-total ( Quantity, 3 )
```

Result: For each row, this displays the quantity and a moving total of the current row and the preceding two rows.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Moving-Total (Qty, 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-----</td>
<td>-----------------------</td>
</tr>
<tr>
<td>200</td>
<td>NULL</td>
</tr>
<tr>
<td>700</td>
<td>NULL</td>
</tr>
<tr>
<td>400</td>
<td>1300</td>
</tr>
<tr>
<td>200</td>
<td>1300</td>
</tr>
<tr>
<td>200</td>
<td>800</td>
</tr>
<tr>
<td>500</td>
<td>900</td>
</tr>
</tbody>
</table>
Appendix D: Using the Expression Editor

**percentage**

Returns the percent of the total value for selected data items. The `<for-option>` defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

```plaintext
percentage ( numeric_expr [ at exp {, expr } ] [ <for-option> ] [ prefilter ] )
percentage ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr {, expr } | for report | auto
```

**Example**

```plaintext
percentage ( sales 98 )
```

Result: Shows the percentage of the total sales for 1998 that is attributed to each sales representative.

<table>
<thead>
<tr>
<th>Sales Rep</th>
<th>Sales 98</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill Gibbons</td>
<td>60646</td>
<td>7.11%</td>
</tr>
<tr>
<td>Bjorn Flertjan</td>
<td>62523</td>
<td>7.35%</td>
</tr>
<tr>
<td>Chris Cornel</td>
<td>22396</td>
<td>2.63%</td>
</tr>
</tbody>
</table>

**percentile**

Returns a value, on a scale of one hundred, that indicates the percent of a distribution that is equal to or below the selected data items. The `<for-option>` defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

```plaintext
percentile ( numeric_expr [ at exp {, expr } ] [ <for-option> ] [ prefilter ] )
percentile ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr {, expr } | for report | auto
```

**Example**

```plaintext
percentile ( Sales 98 )
```

Result: For each row, displays the percentage of rows that are equal to or less than the quantity value of that row.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Percentile (Qty)</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>1</td>
</tr>
<tr>
<td>700</td>
<td>0.875</td>
</tr>
<tr>
<td>600</td>
<td>0.75</td>
</tr>
<tr>
<td>500</td>
<td>0.625</td>
</tr>
<tr>
<td>400</td>
<td>0.5</td>
</tr>
<tr>
<td>200</td>
<td>0.25</td>
</tr>
<tr>
<td>200</td>
<td>0.25</td>
</tr>
</tbody>
</table>
quantile

Returns the rank of a value for a range that you specify. It returns integers to represent any range of ranks, such as 1 (highest) to 100 (lowest). The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

Syntax

quantile ( numeric_expr, numeric_expr [ at exp {, expr } ] [ <for-option> ] [ prefilter ] )
quantile ( [ distinct ] numeric_expr, numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr {, expr } | for report | auto

Example

quantile ( Qty, 4 )

Result: The quantity, the rank of the quantity value, and the quantity values broken down into 4 quantile groups (quartiles).

<table>
<thead>
<tr>
<th>Qty</th>
<th>Rank (Qty)</th>
<th>Quantile (Qty, 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>700</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>600</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>500</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>400</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>400</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>200</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>200</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

quartile

Returns the rank of a value, represented as integers from 1 (highest) to 4 (lowest), relative to a group of values. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

Syntax

quartile ( numeric_expr [ at exp {, expr } ] [ <for-option> ] [ prefilter ] )
quartile ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr {, expr } | for report | auto

Example

quantile ( Qty )
Appendix D: Using the Expression Editor

Result: This displays the quantity and the quartile of the quantity value represented as integers from 1 (highest) to 4 (lowest).

<table>
<thead>
<tr>
<th>Qty</th>
<th>Quartile (Qty)</th>
</tr>
</thead>
<tbody>
<tr>
<td>450</td>
<td>1</td>
</tr>
<tr>
<td>400</td>
<td>1</td>
</tr>
<tr>
<td>350</td>
<td>2</td>
</tr>
<tr>
<td>300</td>
<td>2</td>
</tr>
<tr>
<td>250</td>
<td>3</td>
</tr>
<tr>
<td>200</td>
<td>3</td>
</tr>
<tr>
<td>150</td>
<td>4</td>
</tr>
<tr>
<td>100</td>
<td>4</td>
</tr>
</tbody>
</table>

**rank**

Returns the rank value of selected data items. If two or more rows tie, then there is a gap in the sequence of ranked values (also known as Olympic ranking). The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

\[
\text{rank} \left( \begin{array}{c}
\text{expr} \ [\text{sort_order}] \\
\text{expr} \ [\text{sort_order}]
\end{array} \right) \left[ \text{at} \begin{array}{c}
\text{expr} \ [\text{expr}]
\end{array} \right] \left[ \text{<for-option>} \right] \left[ \text{prefilter} \right]
\]

\[
\text{rank} \left( \begin{array}{c}
\text{distinct} \\
\text{expr} \ [\text{sort_order}] \\
\text{expr} \ [\text{sort_order}]
\end{array} \right) \left[ \text{<for-option>} \right] \left[ \text{prefilter} \right]
\]

\text{<for-option>} ::= \text{for} \begin{array}{c}
\text{expr} \ [\text{expr}]
\end{array} | \text{for report} | \text{auto}

**Example**

\text{rank} \left( \text{Sales 98} \right)

Result: For each row, this displays the rank value of sales for 1998 that is attributed to each sales representative, and skips some numbers when there is a tie between rows.

<table>
<thead>
<tr>
<th>Sales Rep</th>
<th>Sales 98</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill Gibbons</td>
<td>60000</td>
<td>1</td>
</tr>
<tr>
<td>Bjorn Flertjan</td>
<td>50000</td>
<td>2</td>
</tr>
<tr>
<td>Chris Cornel</td>
<td>50000</td>
<td>2</td>
</tr>
<tr>
<td>John Smith</td>
<td>48000</td>
<td>4</td>
</tr>
</tbody>
</table>

**running-average**

Returns the running average by row (including the current row) for a set of values. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

\[
\text{running-average} \left( \begin{array}{c}
\text{numeric_expr} \ [\text{at} \begin{array}{c}
\text{expr} \ [\text{expr}]
\end{array}]
\end{array} \right) \left[ \text{<for-option>} \right] \left[ \text{prefilter} \right]
\]

\[
\text{running-average} \left( \begin{array}{c}
\text{distinct} \\
\text{numeric_expr} \ [\text{<for-option>}] \left[ \text{prefilter} \right]
\end{array} \right)
\]

\text{<for-option>} ::= \text{for} \begin{array}{c}
\text{expr} \ [\text{expr}]
\end{array} | \text{for report} | \text{auto}

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**Example**

```plaintext
running-average ( Qty )
```

Result: For each row, this displays the quantity and a running average of the current and the previous rows.

<table>
<thead>
<tr>
<th>Name</th>
<th>Qty</th>
<th>Avg</th>
<th>Running-Average for name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith</td>
<td>7</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Smith</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Smith</td>
<td>6</td>
<td>5</td>
<td>5.33</td>
</tr>
<tr>
<td>Smith</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Wong</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Wong</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**running-count**

Returns the running count by row (including the current row) for a set of values. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

```plaintext
running-count ( numeric_expr [ at exp {, expr } ] [ <for-option> ] [ prefilter ] )
running-count ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr {, expr } | for report | auto
```

**Example**

```plaintext
running-count ( Qty )
```

Result: For each row, this displays the quantity and a running count of the position of current row.

<table>
<thead>
<tr>
<th>Name</th>
<th>Qty</th>
<th>Count</th>
<th>Running-Count for name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith</td>
<td>7</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Smith</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Smith</td>
<td>6</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Smith</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Wong</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Wong</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**running-difference**

Returns a running difference by row, calculated as the difference between the value for the current row and the preceding row, (including the current row) for a set of values. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.
Appendix D: Using the Expression Editor

Syntax

running-difference ( numeric_expr [ at exp [ , expr ] ] [ <for-option> ] [ prefilter ] )
running-difference ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr [ , expr ] | for report | auto

Example

running-difference ( Qty )
Result: For each row, this displays the quantity and a running difference between the value for the current row and the preceding row.

<table>
<thead>
<tr>
<th>Name</th>
<th>Qty</th>
<th>Running-Difference for name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith</td>
<td>7</td>
<td>NULL</td>
</tr>
<tr>
<td>Smith</td>
<td>3</td>
<td>-4</td>
</tr>
<tr>
<td>Smith</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Smith</td>
<td>4</td>
<td>-2</td>
</tr>
<tr>
<td>Wong</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>Wong</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

running-maximum

Returns the running maximum by row (including the current row) for a set of values. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

Syntax

running-maximum ( numeric_expr [ at exp [ , expr ] ] [ <for-option> ] [ prefilter ] )
running-maximum ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr [ , expr ] | for report | auto

Example

running-maximum ( Qty )
Result: For each row, this displays the quantity and a running maximum of the current and previous rows.

<table>
<thead>
<tr>
<th>Name</th>
<th>Qty</th>
<th>Max</th>
<th>Running-Maximum (Qty) for name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith</td>
<td>2</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Smith</td>
<td>3</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Smith</td>
<td>6</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Smith</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Wong</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Wong</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
running-minimum

Returns the running minimum by row (including the current row) for a set of values. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

Syntax

running-minimum ( numeric_expr [ at exp {, expr } ] [ <for-option> ] [ prefilter ] )
running-minimum ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr {, expr } | for report | auto

Example

running-minimum ( Qty )
Result: For each row, this displays the quantity and a running minimum of the current and previous rows.

<table>
<thead>
<tr>
<th>Name</th>
<th>Qty</th>
<th>Min</th>
<th>Running-Minimum (Qty) for name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith</td>
<td>7</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Smith</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Smith</td>
<td>6</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Smith</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Wong</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Wong</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

running-total

Returns a running total by row (including the current row) for a set of values. The <for-option> defines the scope of the function. The at option defines the level of aggregation and can only be used in the context of relational datasources. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

Syntax

running-total ( numeric_expr [ at exp {, expr } ] [ <for-option> ] [ prefilter ] )
running-total ( [ distinct ] numeric_expr [ <for-option> ] [ prefilter ] )
<for-option> ::= for expr {, expr } | for report | auto

Example

running-total ( Qty )
Appendix D: Using the Expression Editor

Result: For each row, this displays the quantity and a running total of the current and previous rows.

<table>
<thead>
<tr>
<th>Name</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Smith</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Smith</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Smith</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Wong</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Wong</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

**standard-deviation**

Returns the standard deviation of selected data items. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

standard-deviation ( [ distinct ] expr [ auto ] )
standard-deviation ( [ distinct ] expr for [ all | any ] expr { , expr } )
standard-deviation ( [ distinct ] expr for report )

**Example**

standard-deviation ( ProductCost )

Result: A value indicating the deviation between product costs and the average product cost.

**standard-deviation-pop**

Computes the population standard deviation and returns the square root of the population variance. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

standard-deviation-pop ( [ distinct ] expr [ auto ] )
standard-deviation-pop ( [ distinct ] expr for [ all | any ] expr { , expr } )
standard-deviation-pop ( [ distinct ] expr for report )

**Example**

standard-deviation-pop ( ProductCost )

Result: A value of the square root of the population variance.

**total**

Returns the total value of selected data items. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

total ( [ distinct ] expr [ auto ] )
total ( [ distinct ] expr for [ all | any ] expr { , expr } )
total ( [ distinct ] expr for report )

**Example**

total ( Sales )

Result: The total value of all Sales values.
**variance**

Returns the variance of selected data items. The keyword distinct is available for backward compatibility of expressions used in previous versions of the product.

**Syntax**

\[
\text{variance ( [ distinct ] expr [ auto ] )}
\]

\[
\text{variance ( [ distinct ] expr for [ all | any ] expr { , expr } )}
\]

\[
\text{variance ( [ distinct ] expr for report )}
\]

**Example**

\[
\text{variance ( Product Cost )}
\]

Result: A value indicating how widely product costs vary from the average product cost.

**variance-pop**

Returns the population variance of a set of numbers after discarding the nulls in this set.

**Syntax**

\[
\text{variance-pop ( [ distinct ] expr [ auto ] )}
\]

\[
\text{variance-pop ( [ distinct ] expr for [ all | any ] expr { , expr } )}
\]

\[
\text{variance-pop ( [ distinct ] expr for report )}
\]

**Example**

\[
\text{variance-pop ( Qty) }
\]

Result: For each row, this displays the population variance of a set of numbers after discarding the nulls in this set.

**Member Summaries**

This list contains predefined functions that return either a single summary value for a set of members or a different summary value for each member of a set of members.

**aggregate**

Returns a calculated value using the appropriate aggregation function, based on the aggregation type of the expression.

**Syntax**

\[
\text{aggregate ( < currentMeasure | expr > within set set_expr { , set_expr } )}
\]

\[
\text{aggregate ( < currentMeasure | expr > within < detail | aggregate > expr )}
\]

**average**

Returns the average value of selected data items.

**Syntax**

\[
\text{average ( < currentMeasure | expr > within set set_expr { , set_expr } )}
\]

\[
\text{average ( < currentMeasure | expr > within < detail | aggregate > expr )}
\]

**count**

Returns the number of selected data items excluding NULL values.

**Syntax**

\[
\text{count ( < currentMeasure | expr > within set set_expr { , set_expr } )}
\]

\[
\text{count ( < currentMeasure | expr > within < detail | aggregate > expr )}
\]

**maximum**

Returns the maximum value of selected data items.
Appendix D: Using the Expression Editor

**Syntax**

maximum ( < currentMeasure | expr > within set set_expr { , set_expr } )
maximum ( < currentMeasure | expr > within < detail | aggregate > expr )

---

**median**

Returns the median value of selected data items.

**Syntax**

median ( < currentMeasure | expr > within set set_expr { , set_expr } )
median ( < currentMeasure | expr > within < detail | aggregate > expr )

---

**minimum**

Returns the minimum value of selected data items.

**Syntax**

minimum ( < currentMeasure | expr > within set set_expr { , set_expr } )
minimum ( < currentMeasure | expr > within < detail | aggregate > expr )

---

**percentage**

Returns the percent of the total value for selected data items.

**Syntax**

percentage ( numeric_expr [ tuple member_expr {, member_expr } ] within set set_expr {, set_expr } )

**Example**

percentage ( [gosales].[sales measures].[quantity] tuple [gosales].[Staff].[].[department]->[West] within set children([gosales].[Staff].[].[Staff] )

---

**percentile**

Returns a value, on a scale of one hundred, that indicates the percent of a distribution that is equal to or below the selected data items.

**Syntax**

percentile ( numeric_expr [ tuple member_expr {, member_expr } ] within set set_expr {, set_expr } )

---

**quantile**

Returns the rank of a value for the specified range. It returns integers to represent any range of ranks, such as 1 (highest) to 100 (lowest).

**Syntax**

quantile ( numeric_expr, numeric_expr [ tuple member_expr {, member_expr } ] within set set_expr {, set_expr } )

---

**quartile**

Returns the rank of a value, represented as integers from 1 (highest) to 4 (lowest), relative to a group of values.

**Syntax**

quartile ( numeric_expr [ tuple member_expr {, member_expr } ] within set set_expr {, set_expr } )

---

**rank**

Returns the rank value of selected data items. The type of ranking returned (Olympic, dense or serial) is data source dependent.
Appendix D: Using the Expression Editor

Syntax

```
rank ( numeric_expr [ tuple member_expr {, member_expr } ] within set set_expr {, set_expr } )
```

Example

```
rank ( [gosales].[sales measures].[quantity] tuple [gosales].[Staff].[].[department]->[West] within set children([gosales].[Staff].[].[Staff] )
```

**standard-deviation**

Returns the standard deviation of selected data items.

Syntax

```
standard-deviation ( < currentMeasure | expr > within set set_expr {, set_expr } )
standard-deviation ( < currentMeasure | expr > within < detail | aggregate > expr )
```

**total**

Returns the total value of selected data items.

Syntax

```
total ( < currentMeasure | expr > within set set_expr {, set_expr } )
total ( < currentMeasure | expr > within < detail | aggregate > expr )
```

**variance**

Returns the variance of selected data items.

Syntax

```
variance ( < currentMeasure | expr > within set set_expr {, set_expr } )
variance ( < currentMeasure | expr > within < detail | aggregate > expr )
```

**Constants**

A constant is a fixed value that you can use in an expression.

**date**

Inserts the current system date.

**date-time**

Inserts the current system date and time.

**time with time zone**

Inserts a zero time with time zone.

**timestamp with time zone**

Inserts an example of a timestamp with time zone.

**interval**

Inserts a zero interval.

**interval year**

Inserts a zero year interval.
interval month
Inserts a zero month interval.

interval year to month
Inserts a zero year to month interval.

interval day
Inserts a zero day interval.

interval hour
Inserts a zero hour interval.

interval minute
Inserts a zero minute interval.

interval second
Inserts a zero second interval.

interval day to hour
Inserts a zero day to hour interval.

interval day to minute
Inserts a zero day to minute interval.

interval day to second
Inserts a zero day to second interval.

interval hour to minute
Inserts a zero hour to minute interval.

interval hour to second
Inserts a zero hour to second interval.

interval minute to second
Inserts a zero minute to second interval.

null
Inserts a null value if the expression conditions are not met.

number
Inserts the number 0, which you can replace with a new numeric value.

string
Inserts an empty string.

time
Inserts the current system time.

Constructs
if then else

**Syntax**

IF ([Country] = 'Canada')
THEN ([List Price] * 0.60)
ELSE ([List Price])

**in_range**

Specify one or more constants or ranges. A range can be open ended.

**Example**

[gosales].[CONVERSIONRATE].[COUNTRYCODE] IN_RANGE { :30 , 40, 50, 999: }

**search case**

**Syntax**

CASE
WHEN [Country] = 'Canada' THEN ([List Price] * 0.60)
WHEN [CountryCode] > 100 THEN [List Price] * 0.80
ELSE [List Price]
END

**simple case**

**Syntax**

CASE [Country]
WHEN 'Canada' THEN ([List Price] * 0.60)
WHEN 'Australia' THEN [List Price] * 0.80
ELSE [List Price]
END

**Business Date/Time Functions**

This list contains business functions for performing date and time calculations.

**_add_days**

Returns the date or datetime dependent on the first argument resulting from adding integer_exp days to date_exp.

**Syntax**

_add_days ( date_exp, integer_exp )

**Example 1**

_add_days ( 2002-04-30 , 1 )
Result: 2002-05-01

**Example 2**

_add_days ( 2002-04-30 12:10:10.000, 1 )
Result: 2002-05-01 12:10:10.000

**Example 3**

_add_days ( 2002-04-30 00:00:00.000, 1/24 )
Note that the second argument is not a whole number. This is supported by some database technologies and increments the time portion.
Appendix D: Using the Expression Editor

Result: 2002-04-30 01:00:00.000

_add_months

Returns the date or datetime dependent on the first argument resulting from adding integer_exp months to date_exp.

Syntax

_add_months ( date_exp, integer_exp )

Example 1

_add_months ( 2002-04-30 , 1 )
Result: 2002-05-30

Example 2

_add_months ( 2002-04-30 12:10:10.000, 1 )
Result: 2002-05-30 12:10:10.000

_add_years

Returns the date or datetime dependent on the first argument resulting from adding integer_exp years to date_exp.

Syntax

_add_years ( date_exp, integer_exp )

Example 1

_add_years ( 2002-04-30 , 1 )
Result: 2003-04-30

Example 2

_add_years ( 2002-04-30 12:10:10.000 , 1 )
Result: 2003-04-30 12:10:10.000

_age

Returns a number that is obtained from subtracting date_exp from today’s date. This value has the form YYYYMMDD, where YYYY represents the number of years, MM represents the number of months, and DD represents the number of days.

Syntax

_age (date_exp )

Example

Today's date=2003-02-05 _age ( 1990-04-30 )
Result: 120906 that is 12 years, 9 months and 6 days

_day_of_week

Returns the day of week (between 1 and 7), where 1 is the first day of the week as indicated by the second parameter(between 1 and 7, 1 being Monday and 7 being Sunday). Note that in ISO 8601 standard, a week begins with Monday being day 1. In North America where Sunday is the first day of the week being day 7.

Syntax

_day_of_week ( date_exp, integer )

Example

_day_of_week ( 2003-01-01, 1 )
Appendix D: Using the Expression Editor

Result: 3

_**day_of_year**_

Returns the ordinal for the day of the year in date_exp (1 to 366). Also known as Julian day.

**Syntax**

_**day_of_year** ( date_exp )

**Example**

_**day_of_year** ( 2003-03-01 )
Result: 61

_**days_between**_

Returns a positive or negative number representing the number of days between the two date expressions. If date_exp1 < date_exp2 then the result will be a negative number.

**Syntax**

_**days_between** ( date_exp1, date_exp2 )

**Example**

_**days_between** ( 2002-04-30 , 2002-06-21 )
Result: -52

_**days_to_end_of_month**_

Returns a number representing the number of days remaining in the month represented by the date expression date_exp.

**Syntax**

_**days_to_end_of_month** ( date_exp )

**Example**

_**days_to_end_of_month** ( 2002-04-20 14:30:22.123 )
Result: 10

_**first_of_month**_

Returns a date or datetime dependent on the argument obtained from converting date_exp to a date with the same year and month but the day set to 1.

**Syntax**

_**first_of_month** ( date_exp )

**Example 1**

_**first_of_month** ( 2002-04-20 )
Result: 2002-04-01

**Example 2**

_**first_of_month** ( 2002-04-20 12:10:10.000 )
Result: 2002-04-01 12:10:10.000

_**last_of_month**_

Returns a date or datetime dependent on the argument that is the last day of the month represented by date_exp.

**Syntax**

_**last_of_month** ( date_exp )
Appendix D: Using the Expression Editor

**Example 1**

_last_of_month ( 2002-01-14 )
Result: 2002-01-31

**Example 2**

_last_of_month ( 2002-01-14 12:10:10.000 )
Result: 2002-01-31 12:10:10.000

_make_timestamp

Returns a timestamp constructed from integer_exp1 (the year), integer_exp2 (the month) and integer_exp3 (the day).

**Syntax**

_make_timestamp ( integer_exp1, integer_exp2, integer_exp3 )

**Example**

_make_timestamp ( 2002, 01, 14 )
Result: 2002-01-14 00:00:00.000

_months_between

Returns a positive or negative integer number representing the number of months between date_exp1 to date_exp2. If date_exp1 < date_exp2 then a negative number is returned.

**Syntax**

_months_between ( date_exp1, date_exp2 )

**Example**

_months_between ( 2002-01-30, 2002-04-03 )
Result: 2

_week_of_year

Returns the number of the week of the year of the date_exp according to ISO 8601, in which week 1 of the year is the first week of the year to contain a Thursday, which is equivalent to the first week containing January 4th.

**Syntax**

_week_of_year ( date_exp )

**Example**

_week_of_year ( 2003-01-01 )
Result: 1

_years_between

Returns a positive or negative integer number representing the number of years from date_exp1 to date_exp2. If date_exp1 < date_exp2 then a negative value is returned.

**Syntax**

_years_between ( date_exp1, date_exp2 )

**Example**

_years_between ( 2003-01-30, 2001-04-03 )
Result: 1
**_ymdint_between_**

Returns a number representing the difference between the date expressions date_exp1 and date_exp2. This value has the form YYYYMMDD, where YYYY represents the number of years, MM represents the number of months, and DD represents the number of days.

**Syntax**

```plaintext
_ymdint_between ( date_exp1, date_exp2 )
```

**Example**

```plaintext
_ymdint_between ( 1990-04-30 , 2003-02-05 )
```

Result: 120906 that is 12 years, 9 months and 6 days

---

**Block Functions**

This list contains functions used to access members of a set, usually in the context of Analysis Studio.

**_firstFromSet_**

Returns the first members found in the set up to numeric_exp_max + numeric_exp_overflow. If numeric_exp_max + numeric_exp_overflow is exceeded, then only the max number of members are returned.

**Syntax**

```plaintext
_firstFromSet ( set_exp, numeric_exp_max , numeric_exp_overflow )
```

**_remainderSet_**

The member expression will be included in the returned set when the size of the set_exp set is greater than numeric_exp.

**Syntax**

```plaintext
_remainderSet (member_exp,  set_exp , numeric_exp )
```

---

**Macro Functions**

This list contains functions that can be used within a macro. A macro may contain one or more macro functions. A macro is delimited by a number sign (#) at the beginning and at the end. Everything between the number signs is treated as a macro expression, which is executed at run time.

**_+_**

Concatenates two strings.

**Syntax**

```plaintext
value1 + value2
```

**Example**

```plaintext
#{' + $runLocale + '}#
```

Result: [en-us]

**array**

Constructs an array out of the list of parameters.

**Syntax**

```plaintext
array ( string_exp | array_exp { , string_exp | array_exp } )
```
Appendix D: Using the Expression Editor

**Example**

```plaintext
#csv ( 'x1', 'x2', array ( 'a1', 'a2' ) )
Result: 'x1', 'x2', 'a1', 'a2'
```

**csv**

Constructs a comma separated values string from the elements of the array. Optionally the separator and quote strings can be specified. The default separator is a comma (,) and the default quote character is a single quote (').

**Syntax**

```
csv ( array_exp [ , separator_string [ , quote_string ] ] )
```

**Example**

```plaintext
#csv ( array ( 'a1', 'a2' ) )
Result: 'a1', 'a2'
```

**dq**

Surround the passed string with double quotes.

**Syntax**

```
dq ( string_exp )
```

**Example**

```plaintext
#dq ( 'zero' )
Result: "zero"
```

**grep**

Searches for elements of an array that match the pattern specified in the first argument. It returns an array with the elements that pass the pattern.

**Syntax**

```
grep ( pattern_string , array_exp )
```

**Example**

```plaintext
#csv ( grep ( 's' , array ( 'as', 'an', 'arts' ) ) )
Result: 'as', 'arts'
```

**join**

Joins the elements of an array using the separator string.

**Syntax**

```
join ( separator_string , array_exp )
```

**Example**

```plaintext
#sq ( join ( ' | | ' , array ( 'as', 'an', 'arts' ) ) )
Result: 'as || an || arts'
```

**prompt**

Prompt the user for a single value. Only the prompt_name argument is required.
Appendix D: Using the Expression Editor

**Syntax**

prompt ( prompt_name, datatype, defaultText, text, queryItem, trailing_text )

**Example**

```sql
select ... where COUNTRY_MULTILINGUAL.COUNTRY_CODE  > #prompt('Starting CountryCode', 'integer', '10')#
```

Result: select... where COUNTRY_MULTILINGUAL.COUNTRY_CODE  > 150

**promptmany**

Prompt the user for one or more values. Only the prompt_name argument is required.

**Syntax**

promptmany ( prompt_name, datatype, defaultText, text, queryItem, trailing_text )

**Example**

```sql
select ... where COUNTRY_MULTILINGUAL.COUNTRY IN ( #promptmany ('CountryName') )
```

Result: select... where COUNTRY_MULTILINGUAL.COUNTRY_CODE IN ('Canada', 'The Netherlands', 'Russia')

**sb**

Surround the passed string with square brackets.

**Syntax**

sb ( string_exp )

**Example**

```sql
#sb ( 'abc' )#
```

Result: [abc]

**sq**

Surround the passed string with single quotes.

**Syntax**

sq ( string_exp )

**Example**

```sql
#sq ( 'zero' )#
```

Result: 'zero'

**sort**

Sorts the elements of the array in alphabetical order. Duplicates are retained.

**Syntax**

sort ( array_exp )

**Example**

```sql
#csv ( sort ( array ( 's3', 'a', 'x' ) ) )#
```
Appendix D: Using the Expression Editor

Result: 'a', 's3', 'x'

**split**

Splits a string or the string elements of the array into separate elements.

**Syntax**

```
split ( pattern_string, string_exp | array_exp )
```

**Example 1**

```csv
#csv ( split ( '::', 'ab=c::de=f::gh=i' ) )
```

Result: 'ab=c', 'de=f', 'gh=i'

**Example 2**

```csv
#csv ( split ( '=', split ( '::', 'ab=c::de=f::gh=i' ) ) )
```

Result: 'ab', 'c', 'de', 'f', 'gh', 'i'

**substitute**

Search for a pattern in a string or in the string elements of an array and substitute the found text with other text.

**Syntax**

```
substitute ( pattern_string, replacement_string, string_exp | array_exp )
```

**Example 1**

```sq
#sq ( substitute ( '^cn=', '***', 'cn=help' ) )
```

Result: '***help'

**Example 2**

```csv
#csv ( substitute ( '^cn=', '***', array ( 'cn=help', 'acn=5' ) ) )
```

Result: '***help', 'acn=5'

**Example 3**

```csv
#csv ( substitute ( 'cn=', '', array ( 'cn=help', 'acn=5' ) ) )
```

Result: 'help', 'a5'

**unique**

Removes duplicate entries from the array. The order of the elements is retained.

**Syntax**

```
unique ( array_exp )
```

**Example**

```csv
Example:
#csv ( unique ( array ( 's3', 'a', 's3', 'x' ) ) )
```

Result: 's3', 'a', 'x'

**urlencode**

URL encodes the passed argument. Useful when specifying XML connection strings.
Appendix D: Using the Expression Editor

**Syntax**

```
field_one=urlencode(prompt('userValue'))
```

**Example**

```
urlencode(prompt('some_val'))
```

**Result:** %27testValue%27

**CSVIdentityName**

Use the identity information of the current authenticated user to lookup values in the specified parameter map. Each individual piece of the user’s identity (account name, group names, role names) is used as a key into the map. The unique list of values that is retrieved from the map is then returned as a string, where each value is surrounded by single quotes and where multiple values are separated by commas.

**Syntax**

```
CSVIdentityName ( %parameter_map_name [ , separator_string ] )
```

**Example**

```
#CSVIdentityName ( %security_clearance_level_map )#
```

**Result:** 'level_500', 'level_501', 'level_700'

**CSVIdentityNameList**

Returns the pieces of the user’s identity (account name, group names, role names) as a list of strings. The unique list of values is returned as a string, where each value is surrounded by single quotes and where multiple values are separated by commas.

**Syntax**

```
CSVIdentityNameList ( [ separator_string ] )
```

**Example**

```
#CSVIdentityNameList ( )#
```

**Result:** 'Everyone', 'Report Administrators', 'Query User'

**CAMPassport**

Returns the passport.

**Syntax**

```
CAMPassport ( )
```

**Example**

```
#CAMPassport ( )#
```

**Result:** 111:98812d62-4fd4-037b-4354-26414cf7ebef:3677162321

**CAMIDList**

Returns the pieces of the user’s identity (account name, group names, role names) as a list of values separated by commas.

**Syntax**

```
CAMIDList ( [ separator_string ] )
```

**Example**

```
#CAMIDList ( )#
```

**Result:** CAMID("::Everyone"), CAMID("::Authors"), CAMID("::Query Users"), CAMID("::Consumers"), CAMID("::Metrics Authors")
Appendix D: Using the Expression Editor

**CAMIDListForType**

Returns an array of the user's identities based on the identity type (account, group, or role). It can be used with the macro functions csv or join.

**Syntax**

```
CAMIDListForType ( identity type )
```

**Example**

```
[qs].[userRole] IN ( #csv ( CAMIDListForType ( 'role' ) ) # )
```

Result: `[qs].[userRole] IN ('Administrator', 'developer')`

**Common Functions**

**_format**

Associates a format with the expression. The keyword can be PERCENTAGE_0, PERCENTAGE_1 or PERCENTAGE_2.

**Syntax**

```
_format ( expr , keyword )
```

**Example**

```
_format( [Unit Sale Price] / [Unit Price] , PERCENTAGE_2 )
```

Result: 0.75123 displayed as 75.12%

**_round**

Returns the numeric expression rounded to the integer_exp places right of the decimal point. Note: integer_exp MUST be a non-negative integer.

**Syntax**

```
_round ( numeric_exp , integer_exp )
```

**Example**

```
_round ( 1220.42369 , 2 )
```

Result: 1220.42

**abs**

Returns the absolute value of numeric_exp. The sign of negative values is changed to positive.

**Syntax**

```
abs ( numeric_exp )
```

**Example 1**

```
abs ( 15 )
```

Result: 15

**Example 2**

```
abs ( -15 )
```

Result: 15
ancestor

Returns the ancestor of the specified member at either the specified (named) level or the specified number of levels above the member. Note: The result is not guaranteed to be consistent when there is more than one such ancestor.

Syntax

\texttt{ancestor ( member, level \mid integer )}

ancestors

Returns all the ancestors of a member at a specified level, or distance above the member. (Most data sources support only one ancestor at a specified level, but some support more than one. Hence the result is a member set.)

Syntax

\texttt{ancestors ( member, level \mid index )}

bottomCount

This function sorts a set according to the value of "numeric\_exp" evaluated at each of the members of "set\_exp", and returns the bottom "index\_exp" members.

Syntax

\texttt{bottomCount ( set\_exp, index\_exp, numeric\_exp )}

bottomPercent

This function is similar to bottomSum, but the threshold is "numeric\_exp1" percent of the total.

Syntax

\texttt{bottomPercent ( set\_exp, numeric\_exp1, numeric\_exp2 )}

bottomSum

This function sorts on "numeric\_exp2", evaluated at the corresponding member of "set\_exp", and picks up the bottommost elements whose cumulative total is at least numeric\_exp1.

Syntax

\texttt{bottomSum ( set\_exp, numeric\_exp1, numeric\_exp2 )}

caption

Returns the caption values of the specified argument.

Syntax

\texttt{caption ( level \mid member \mid set\_exp )}

cast

Converts an expression to a specified data type. Some data types allow for a length and precision to be specified. Make sure that the target is of the appropriate type and size.

Syntax

\texttt{cast ( expression, datatype\_specification )}

Example 1

\texttt{cast ( '123', integer )}
Result: 123

Example 2

\texttt{cast ( 12345, VARCHAR ( 10 ) )}
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Result: a string containing 12345

Notes

• You can specify the following datatypes: CHARACTER, VARCHAR, CHAR, NUMERIC, DECIMAL, INTEGER, SMALLINT, REAL, FLOAT, DATE, TIME, TIMESTAMP, TIME WITH TIME ZONE, TIMESTAMP WITH TIME ZONE, and INTERVAL.
• When you convert a value of type TIMESTAMP to type DATE, the time portion of the timestamp value is ignored.
• When you convert a value of type TIMESTAMP to type TIME, the date portion of the timestamp is ignored.
• When you convert a value of type DATE to type TIMESTAMP, the time components of the timestamp are set to zero.
• When you convert a value of type TIME to type TIMESTAMP, the date component is set to the current system date.
• When you type cast to an INTERVAL type, you must specify one of the following interval qualifiers: YEAR, MONTH, or YEAR TO MONTH for the year-to-month interval datatype; DAY, HOUR, MINUTE, SECOND, DAY TO HOUR, DAY TO MINUTE, DAY TO SECOND, HOUR TO MINUTE, HOUR TO SECOND, or MINUTE TO SECOND for the day-to-second interval datatype. It is invalid to convert one interval datatype to the other (for instance because the number of days in a month is variable). Note that you can specify the number of digits for the leading qualifier only, i.e. YEAR(4) TO MONTH, DAY(5).
• Errors will be reported if the target type and size are not compatible with the source type and size.

ceiling

Returns the smallest integer greater than or equal to numeric_exp.

Syntax

ceiling ( numeric_exp )

Example 1

ceiling ( 4.22 )
Result: 5

Example 2

ceiling ( -1.23 )
Result: -1

character_length

Returns the number of characters in string_exp.

Syntax

character_length ( string_exp )

Example

character_length ( 'Canada' )
Result: 6

children

Returns the set of children of a specified member.

Syntax

children ( member )
**closingPeriod**

Returns the last sibling among the descendants of a member at a specified level. Typically used with a time dimension.

**Syntax**

```
closingPeriod ( level [, member ] )
```

**coalesce**

Returns the first non-null argument (or null if all arguments are null). The Coalesce function takes two or more arguments.

**Syntax**

```
coalesce ( exp_list )
```

**completeTuple**

Similar to "tuple", identifies a cell location (intersection) based on the specified members, each of which must be from a different dimension. However, completeTuple implicitly includes the default member from all dimensions not otherwise specified in the arguments, rather than the current member. The value of this cell can be obtained with the "value" function.

**Syntax**

```
completeTuple ( member { , member } )
```

**cousin**

Returns the child member of member2 with the same relative position as the member1 is under its parent.

**Syntax**

```
cousin ( member1 , member2 )
```

**current_date**

Returns a date value representing the current date of the computer that the database software runs on.

**Syntax**

```
current_date
```

**Example**

```
current_date
```

**Result:** 2003-03-04

**current_time**

Returns a time with time zone value, representing the current time of the computer that runs the database software.

**Syntax**

```
current_time
```

**Example**

```
current_time
```

**Result:** 16:33:11+05:00

**current_timestamp**

Returns a datetime with time zone value, representing the current timestamp of the computer that runs the database software.
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**Syntax**
current_timestamp

**Example**
current_timestamp
Result: 2003-03-03 16:40:15.535000+05:00

**currentMember**
Returns the current member of the hierarchy during an iteration. If the specified hierarchy is not present in the context in which the expression is being evaluated, its default member is assumed.

**Syntax**
currentMember ( hierarchy )

**defaultMember**
Returns the default member of a hierarchy.

**Syntax**
defaultMember ( hierarchy )

**descendants**
Returns the set of descendants of a set of members at a specified level (qualified name) or distance (integer 0..n) from the root. Duplicates will be removed from the set. Multiple options may be specified (separated by a space) to determine which members are to be returned.

**Syntax**
descendants ( set_expr , level | distance [ , { self | before | beforewithmember | after } ] )

**Example**
descendants([national].[Line].[Line].[Line1]->:[PC].[Line (Root)].[Dishwashers], 2, SELF AFTER)
Result: Result: AcmeWash MR AcmeWash AcmeWash HE

**Notes**
- **self**: Only the members at the specified level are included in the final set (this is the default behaviour in the absence of any options).
- **before**: If there are any intermediate levels between the member’s level and the one specified, members from those levels are included. If the level specified is the same as the member upon which the function is applied, the member is included in the final set.
- **beforewithmember**: If there are any intermediate levels between the member’s level and the one specified, members from those levels are included. The member upon which the function is applied is also included in the final set.
- **after**: If other levels exist after the specified level, members from those levels are included in the final set.

**emptySet**
Returns an empty member set for the specified hierarchy.

**Syntax**
emptySet ( hierarchy )

**except**
Returns the members of "set_exp1" that are not also in "set_exp2". Duplicates are retained only if the optional keyword ALL is supplied as the third argument.
Syntax
except ( set_exp1 , set_exp2 [,ALL] )

exp

Returns e raised to the power of numeric_exp. The constant e is the base of the natural logarithm. See also log.

Syntax
exp ( numeric_exp )

Example
exp ( 2 )
Result: 7.389056

extract

Returns an integer representing the value of datepart (year, month, day, hour, minute, second) in datetime_exp.

Syntax
extract ( datepart , datetime_exp )

Example 1
extract ( year , 2003-03-03 16:40:15.535 )
Result: 2003

Example 2
extract ( hour , 2003-03-03 16:40:15.535 )
Result: 16

filter

Returns the set resulting from filtering a specified set based on the boolean condition. Each member is included in the result if and only if the corresponding value of "boolean_exp" is true.

Syntax
filter ( set_exp , boolean_exp )

firstChild

Returns the first child of a member.

Syntax
firstChild ( member)

firstSibling

Returns the first child of the parent of a member.

Syntax
firstSibling ( member )

floor

Returns the largest integer less than or equal to numeric_exp.

Syntax
floor ( numeric_exp )
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Example 1
floor ( 3.22 )
Result: 3

Example 2
floor ( -1.23 )
Result: -2

generate
This function evaluates "set_exp2" for each member of "set_exp1" and joins the resulting sets by union. If ALL is specified, duplicates in the result are retained.

Syntax
generate ( set_exp1 , set_exp2 [ , ALL ] )

head
Returns the first "index_exp" elements of "set_exp". The default for "index_exp" is 1.

Syntax
head ( set_exp [ , index_exp ] )

hierarchize
This function orders the members of a set in a hierarchy. Members in a level are sorted in their natural order, which is the default ordering of the members along a dimension when no other sort conditions are specified.

Syntax
hierarchize ( set_exp )

hierarchy
Returns the hierarchy that contains the specified level, member or member set.

Syntax
hierarchy ( level | member | set_exp )

intersect
Returns the intersection of two input sets. The result retains duplicates only when the optional keyword ALL is supplied as the third argument.

Syntax
intersect ( set_exp1 , set_exp2 [ , ALL ] )

item
Returns a member from a specified location within a set. The index into the set is zero based

Syntax
item ( set_exp , index )

lag
Returns the sibling member that is a specified number of positions prior to a specified member.

Syntax
lag ( member , index_exp )
lastChild

Returns the last child of a specified member.

**Syntax**

```
lastChild ( member )
```

lastPeriods

Returns the set of members from the same level that ends with the specified member. The number of members returned is the absolute value of "integer_exp". If "integer_exp" is negative, members following and including the specified member are returned. Typically used with a time dimension.

**Syntax**

```
lastPeriods ( integer_exp , member )
```

lastSibling

Returns the last child of the parent of a specified member.

**Syntax**

```
lastSibling ( member )
```

lead

Returns the sibling member that is a specified number of positions following a specified member.

**Syntax**

```
lead ( member , index_exp )
```

level

Returns the level of a member.

**Syntax**

```
level ( member )
```

levels

Returns the level in the hierarchy whose distance from the root is specified by "index".

**Syntax**

```
levels ( hierarchy , index )
```

ln

Returns the natural logarithm of the numeric_exp.

**Syntax**

```
ln ( numeric_exp )
```

**Example**

```
ln ( 4 )
```

Result: 1.38629

localtime

Returns a time value, representing the current time of the computer that runs the database software.

**Syntax**

```
localtime
```
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**Example**

localtime
Result: 16:33:11

**localtimestamp**

Returns a datetime value, representing the current timestamp of the computer that runs the database software.

**Syntax**

localtimestamp

**Example**

localtimestamp
Result: 2003-03-03 16:40:15.535000

**lower**

Returns string_exp with all uppercase characters shifted to lowercase.

**Syntax**

lower ( string_exp )

**Example**

lower ( 'ABCDEF' )
Result: 'abcdef'

**member**

Defines a member based on the specified expression in the specified hierarchy. "string1" is used to identify the member created by this function it must be unique in the query, and must be different from any other member in the same hierarchy. "string2" is used as the caption of the member; if it is absent, the caption is empty. If the hierarchy is omitted, the measure dimension is assumed. Note: All calculations used as grouping items whose sibling items are other calculations or member sets, should be explicitly assigned to a hierarchy using this function, otherwise the results are not predictable. The only exception to this is where the calculation involves only members of the same hierarchy as the siblings. In that case the calculation is assumed to belong to that hierarchy.

**Syntax**

member ( value_exp [ , string1 [ , string2 [ , hierarchy ] ] ] )

**members**

Returns the set of members in a hierarchy or level. In the case of a hierarchy, the order of the members in the result is not guaranteed; if a predictable order is required, an explicit ordering function (such as hierarchize) must be used.

**Syntax**

members ( hierarchy | level )

**mod**

Returns the remainder (modulus) of integer_exp1 divided by integer_exp2. The integer_exp2 must not be zero or an exception condition is raised.

**Syntax**

mod ( integer_exp1, integer_exp2 )

**Example**

mod ( 20 , 3 )
nestedSet

Returns the set of members of set_expr2 evaluated in the context of the current member of set_expr1.

**Syntax**

```
nestedSet ( set_expr1 , set_expr2 )
```

nextMember

Returns the next member in the level to which the specified member exists.

**Syntax**

```
nextMember ( member )
```

octet_length

Returns the number of bytes in string_exp.

**Syntax**

```
octet_length ( string_exp )
```

**Example 1**

```
octet_length ( 'ABCDEF' )
```

Result: 6

**Example 2**

```
octet_length ( '' )
```

Result: 0

openingPeriod

Returns the first sibling member among the descendants of a member at a specified level. Typically used with a time dimension.

**Syntax**

```
openingPeriod ( level [ , member ] )
```

order

Arranges members of a specified set, as determined from the set of values created by evaluating "value_exp" for each value of the set, and modified by the third parameter. There are two varieties of order: hierarchized (ASC or DESC) and non-hierarchized (BASC or BDESC, where B stands for "break hierarchy"). The hierarchized ordering first arranges members according to their position in the hierarchy. Then it orders the children of each member according to "value_exp". The non-hierarchized ordering arranges members in the set without regard to the hierarchy. In the absence of an explicit specification, ASC is the default.

**Syntax**

```
order ( set_exp , value_exp [ , ASC | DESC | BASC | BDESC ] )
```

ordinal

Returns the zero-based ordinal value (distance from the root level) of the specified level.

**Syntax**

```
ordinal ( level )
```
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**parallelPeriod**

Returns a member from a different period in the same relative position as a specified member. This function is similar to the "Cousin" function, but is more closely related to time series. It takes the ancestor of "member" at "level" (call it "ancestor"); then it takes the sibling of "ancestor" that is offset (follows) by "int exp" positions, and returns the descendants of that sibling in the same relative position as the specified member as under "ancestor".

**Syntax**

\[
\text{parallelPeriod ( level, int_exp, member )}
\]

**parent**

Returns the member that is the parent of the specified member.

**Syntax**

\[
\text{parent ( member )}
\]

**periodsToDate**

Returns a set of sibling members from the same level as a given member, as constrained by a specified level. It locates the ancestor of "member" at "level", and returns that ancestor's descendants at the same level as "member", up to and including "member". Typically used with a time dimension.

**Syntax**

\[
\text{periodsToDate ( level, member )}
\]

**position**

Returns integer value representing the position of the first string_exp in the second string_exp or 0 when the first string_exp is not found.

**Syntax**

\[
\text{position ( string_exp, string_exp )}
\]

**Example 1**

\[
\text{position ( 'C', 'ABCDEF' )}
\]

Result: 3

**Example 2**

\[
\text{position ( 'H', 'ABCDEF' )}
\]

Result: 0

**power**

Returns numeric_exp1 raised to the power numeric_exp2. If numeric_exp1 is negative then numeric_exp2 must result in an integer value.

**Syntax**

\[
\text{power ( numeric_exp1, numeric_exp2 )}
\]

**Example**

\[
\text{power ( 3, 2 )}
\]

Result: 9

**prevMember**

Returns the member that immediately precedes the specified member in the same level.
Syntax

prevMember ( member )

roleValue

Returns the value of the attribute that is associated with the role whose name is specified by "string" within the specified context. The second argument is optional only in a number of limited circumstances, where it can be derived from other context. Applications can be made portable across different data sources and models by accessing attributes by role, rather than by query item ID. (For dimensionally modelled relational data sources, assignment of roles is the modeller's responsibility.) Intrinsic roles that are defined for members of all data source types include: _businessKey, _memberCaption, _memberDescription, _memberUniqueName.

Syntax

roleValue ( string [ , member | set_exp ] )

rootMembers

Returns the root members of a hierarchy.

Syntax

rootMembers ( hierarchy )

set

Returns the list of members defined in the expression. The members must belong to the same hierarchy.

Syntax

set ( member { , member } )

siblings

Returns the children of the parent of the specified member.

Syntax

siblings ( member )

sqrt

Returns the square root of numeric_exp. numeric_exp must be non-negative.

Syntax

sqrt ( numeric_exp )

Example

sqrt ( 9 )
Result: 3

subset

Returns a subset of members from a specified set starting "index_exp1" from the beginning. If the count "index_exp2" is specified, that many members (if available) are returned. Otherwise, all remaining members are returned.

Syntax

subset ( set_exp, index_exp1 [ , index_exp2 ] )
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**substring**

Returns the substring of string_exp that starts at position integer_exp1 for integer_exp2 characters or to the end of string_exp if integer_exp2 is omitted. The first character in string_exp is at position 1.

**Syntax**

```
substring ( string_exp , integer_exp1 [ , integer_exp2 ] )
```

**Example**

```
substring ( 'abdefg', 3, 2)
```

Result: 'de'

**tail**

Returns the last "index_exp" elements of "set exp". The default for "index_exp" is 1.

**Syntax**

```
tail ( set_exp [ , index_exp ] )
```

**topCount**

This function sorts a set according to the values of "numeric_exp" evaluated at each of the members of "set_exp", and returns the top "index_exp" members.

**Syntax**

```
topCount ( set_exp , index_exp , numeric_exp )
```

**topPercent**

This function is similar to topSum, but the threshold is "numeric_exp1" percent of the total.

**Syntax**

```
topPercent ( set_exp , numeric_exp1, numeric_exp2 )
```

**topSum**

This function sorts on "numeric_exp2", evaluated at the corresponding members of "set_exp", and picks up the topmost elements whose cumulative total is at least "numeric_exp1".

**Syntax**

```
topSum ( set_exp , numeric_exp1 , numeric_exp2 )
```

**trim**

Returns a string_exp trimmed of leading and/or trailing blanks or trimmed of a certain character specified in match_character_exp. BOTH is implicit when first argument is not stated and blank is implicit when second argument is not stated.

**Syntax**

```
trim ( [ [ TRAILING | LEADING | BOTH ] [ match_character_exp ] , ] string_exp )
```

**Example 1**

```
trim ( TRAILING 'A' , 'ABCDEFA' )
```

Result: 'ABCDEF'

**Example 2**

```
trim ( BOTH ' ABCDEF ' )
```

Result: 'ABCDEF'
tuple

Identifies a cell location (intersection) based on the specified members, each of which must be from a different dimension. Implicitly includes the current member from all dimensions not otherwise specified in the arguments. The current member of any dimension not specified in the evaluating context is assumed to be the default member of that dimension. The value of this cell can be obtained with the "value" function.

Syntax

tuple ( member { , member } )

union

This function returns the union of 2 sets "set_exp1" and "set_exp2". The result retains duplicates only when the optional keyword ALL is supplied as the third argument.

Syntax

union ( set_exp1 , set_exp2 [ , ALL ] )

unique

Removes all duplicates from the specified set. The remaining members retain their original order.

Syntax

unique ( set_expr )

upper

Returns string_exp with all lowercase characters shifted to uppercase.

Syntax

upper ( string_exp )

Example

upper ( 'abcdef' )
Result: 'ABCDEF'

db2

value

Returns the value of the cell identified by a tuple. Note that the default member of the Measures dimension is the Default Measure

Syntax

value ( tuple )

DB2

ascii

Returns the ASCII code value of the leftmost character of the argument as an integer.

Syntax

ascii ( string_exp )

ceiling

Returns the smallest integer greater than or equal to numeric_exp.

Syntax

ceiling ( numeric_exp )
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**char**

Returns a string representation of a date/time value or a decimal number.

**Syntax**

```plaintext
char ( exp )
```

**chr**

Returns the character that has the ASCII code value specified by integer_exp. integer_exp should be between 0 and 255.

**Syntax**

```plaintext
chr ( integer_exp )
```

**concat**

Returns a string that is the result of concatenating string_exp1 with string_exp2.

**Syntax**

```plaintext
concat ( string_exp1, string_exp2 )
```

**date**

Returns a date from a single input value. exp can be a string or integer representation of a date.

**Syntax**

```plaintext
date ( exp )
```

**day**

Returns the day of the month (1-31) from date_exp. date_exp can be a date value or a string representation of a date.

**Syntax**

```plaintext
day ( date_exp )
```

**dayname**

Returns a character string containing the data source_specific name of the day (for example, Sunday through Saturday or Sun. through Sat. for a data source that uses English, or Sonntag through Samstag for a data source that uses German) for the day portion of date_exp. date_exp can be a date value or a string representation of a date.

**Syntax**

```plaintext
dayname ( date_exp )
```

**dayofweek**

Returns the day of the week in date_exp as an integer in the range 1 to 7, where 1 represents Sunday. date_exp can be a date value or a string representation of a date.

**Syntax**

```plaintext
dayofweek ( date_exp )
```

**dayofweek_iso**

Returns the day of the week in date_exp as an integer in the range 1 to 7, where 1 represents Monday. date_exp can be a date value or a string representation of a date.

**Syntax**

```plaintext
dayofweek_iso ( date_exp )
```
dayofyear

Returns the day of the year in date_exp as an integer in the range 1 to 366. date_exp can be a date value or a string representation of a date.

**Syntax**

dayofyear ( date_exp )

days

Returns an integer representation of a date. exp can be a date value or a string representation of a date.

**Syntax**

days ( exp )

decimal

Returns decimal representation of string_exp1 with precision numeric_exp1, scale numeric_exp2 and decimal character string_exp2. String_exp1 must be formatted as a SQL Integer or Decimal constant.

**Syntax**


difference

Returns an integer value representing the difference between the values returned by the data source_specific soundex function for string_exp1 and string_exp2. The value returned ranges from 0 to 4, with 4 indicating the best match. Note that 4 does not mean that the strings are equal.

**Syntax**

difference ( string_exp1, string_exp2 )

digits

Returns the character string representation of a non-floating point number.

**Syntax**

digits ( numeric_exp )

double

Returns the floating-point representation of an expression. 'exp' can be either a numeric or string expression.

**Syntax**

double ( exp )

event_mon_state

Returns the operational state of a particular state monitor.

**Syntax**

event_mon_state ( string_exp )

float

Returns the floating-point representation of a number.
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Syntax

float ( numeric_exp )

hex

Returns the hexadecimal representation of a value.

Syntax

hex ( exp )

hour

Returns the hour (an integer from 0, which is midnight, to 23, which is 11:00 pm) from time_exp. time_exp can be a time value or a string representation of a time.

Syntax

hour ( time_exp )

insert

Returns a string where length (integer_exp2) characters have been deleted from string_exp1 beginning at start (integer_exp1) and where string_exp2 has been inserted into string_exp1 at start. The first character in a string is at position 1.

Syntax

insert ( string_exp1, integer_exp1, integer_exp2, string_exp2 )

integer

Returns the integer representation of an expression. exp can be a numeric value or a string representation of a number.

Syntax

integer ( exp )

int

Returns the integer representation of an expression. exp can be a numeric value or a string representation of a number.

Syntax

int ( exp )

julian_day

Returns an integer value representing the number of days from January 1, 4712 BC (the start of the Julian date calendar) to the date value specified in exp. exp can be a date value or a string representation of a date.

Syntax

julian_day ( exp )

lcase

Returns string_exp with all uppercase characters shifted to lowercase.

Syntax

lcase ( string_exp )

left

Returns the leftmost integer_exp characters of string_exp.
Syntax
left ( string_exp, integer_exp )

length
Returns the length of the operand in bytes (except for double byte string types which return the length in characters).

Syntax
length ( exp )

locate
Returns the starting position of the first occurrence of string_exp1 within string_exp2. The search starts at position start (integer_exp) of string_exp2. The first character in a string is at position 1. If string_exp1 is not found then zero is returned.

Syntax
locate ( string_exp1, string_exp2 [ , integer_exp ] )

long_varchar
Returns a long string.

Syntax
long_varchar ( string_exp )

ltrim
Returns string_exp with leading spaces removed.

Syntax
ltrim ( string_exp )

microsecond
Returns the microsecond (time-unit) part of a value. exp can be a timestamp or a string representation of a timestamp.

Syntax
microsecond ( exp )

midnight_seconds
Returns an integer value in the range 0 to 86400 representing the number of seconds between midnight and time value specified in the argument. exp can be a time value, a timestamp or a string representation of a time.

Syntax
midnight_seconds ( exp )

minute
Returns the minute (an integer from 0-59) from time_exp. time_exp can be a time value, a timestamp or a string representation of a time.

Syntax
minute ( time_exp )

month
Returns the month (an integer from 1-12) from date_exp.
Appendix D: Using the Expression Editor

**Syntax**

```plaintext
month ( date_exp )
```

**monthname**

Returns a character string containing the data source specific name of the month (for example, January through December or Jan. through Dec. for a data source that uses English, or Januar through Dezember for a data source that uses German) for the month portion of date_exp.

**Syntax**

```plaintext
monthname ( date_exp )
```

**quarter**

Returns the quarter in date_exp as a number in the range 1 to 4, where 1 represents January 1 through March 31.

**Syntax**

```plaintext
quarter ( date_exp )
```

**radians**

Returns the number of radians converted from numeric_exp degrees.

**Syntax**

```plaintext
radians ( numeric_exp )
```

**repeat**

Returns a string consisting of string_exp repeated integer_exp times.

**Syntax**

```plaintext
repeat ( string_exp, integer_exp )
```

**replace**

Replaces all occurrences of string_exp2 in string_exp1 with string_exp3.

**Syntax**

```plaintext
replace ( string_exp1, string_exp2, string_exp3 )
```

**right**

Returns the rightmost integer_exp characters of string_exp.

**Syntax**

```plaintext
right ( string_exp, integer_exp )
```

**round**

Returns numeric_exp rounded to the nearest value integer_exp places right of the decimal point. If integer_exp is negative, numeric_exp is rounded to the nearest value absolute (integer_exp) places to the left of the decimal point, e.g., round-near (125, -1) rounds to 130.

**Syntax**

```plaintext
round ( numeric_exp, integer_exp )
```

**rtrim**

Returns string_exp with trailing spaces removed.

**Syntax**

```plaintext
rtrim ( string_exp )
```
second
Returns the second (an integer from 0-59) from time_exp.

Syntax
second ( time_exp )

sign
Returns an indicator of the sign of numeric_exp: +1 if numeric_exp is positive, 0 if zero or -1 if negative.

Syntax
sign ( numeric_exp )

smallint
Returns the small integer representation of a number.

Syntax
smallint ( exp )

soundex
Returns a 4 character string code obtained by systematically abbreviating words and names in string_exp according to phonetics. Can be used to determine if two strings sound the same, e.g., does sound-of ('SMITH') = sound-of ('SMYTH').

Syntax
soundex ( string_exp )

space
Returns a string consisting of integer_exp spaces.

Syntax
space ( integer_exp )

substr
Returns the substring of string_exp that starts at position integer_exp1 for integer_exp2 characters. The first character in string_exp is at position 1.

Syntax
substr ( string_exp, integer_exp1 [ , integer_exp2 ] )

table_name
Returns an unqualified name of a table or view based on the object name in string_exp1 and the schema name given in string_exp2. It is used to resolve aliases.

Syntax
table_name ( string_exp1 [ , string_exp2 ] )

table_schema
Returns the schema name portion of the two part table or view name based on the object name in string_exp1 and the schema name in string_exp2. It is used to resolve aliases.

Syntax
table_schema ( string_exp1 [ , string_exp2 ] )
Appendix D: Using the Expression Editor

**time**

Returns a time from a value.

**Syntax**

time ( exp )

**timestamp**

Returns a timestamp from a value or a pair of values. exp1 must represent a date value, and exp2 must represent a time value.

**Syntax**

timestamp ( exp1 [ , exp2 ] )

**timestamp_iso**

Returns a datetime in the ISO format (yyyy-mm-dd hh:mm:ss.nnnnnn) converted from the IBM format (yyyy-mm-dd-hh.mm.ss.nnnnnn). If the exp is a time, it inserts the value of the CURRENT DATE for the date elements and zero for the fractional time element.

**Syntax**

timestamp_iso ( exp )

**timestampdiff**

Returns an estimated number of intervals of type exp1 based on the difference between two timestamps. Exp2 is the result of subtracting two timestamp types and converting the result to CHAR. Valid values of exp1 are: 1 Fractions of a second; 2 Seconds; 4 Minutes; 8 Hours; 16 Days; 32 Weeks; 64 Months; 128 Quarters; 256 Years

**Syntax**

timestampdiff ( exp1, exp2 )

**to_char**

Returns the string representation of a timestamp with the format of string_exp.

**Syntax**

to_char ( timestamp_exp , string_exp )

**translate**

Returns string_exp1 in which characters from string_exp3 are translated to the equivalent characters in string_exp2. string_exp4 is a single character that is used to pad string_exp2 if it is shorter than string_exp3. If only string_exp1 is present, then this function translates it to uppercase characters.

**Syntax**

translate ( string_exp1 [ , string_exp2, string_exp3 [ , string_exp4 ] ] )

**truncate**

Returns numeric_exp1 truncated to numeric_exp2 places RIGHT of the decimal point. If numeric_exp2 is negative, numeric_exp1 is truncated to the absolute value of numeric_exp2 places to the LEFT of the decimal point.

**Syntax**

truncate ( numeric_exp1, numeric_exp2 )

**ucase**

Returns string_exp with all lowercase characters shifted to uppercase.
Syntax
```
ucase ( string_exp )
```

**value**

Returns the first non-null argument (or null if all arguments are null). The Value function takes two or more arguments.

Syntax
```
value ( exp_list )
```

**varchar**

Returns a VARCHAR representation of `exp`, with length `numeric_exp`.

Syntax
```
varchar ( exp [ , numeric_exp ] )
```

**week**

Returns the week of the year in `date_exp` as an integer value in the range 1 to 53.

Syntax
```
week ( date_exp )
```

**year**

Returns the year from `date_exp`.

Syntax
```
year ( date_exp )
```

**DB2 Cast**

**cast_char**

Returns the first numeric_exp characters of the value of `exp` cast as a string. The whole string is returned when the second argument is not specified.

Syntax
```
cast_char ( exp [ , numeric_exp ] )
```

**cast_date**

Returns the value of the expression cast as a date.

Syntax
```
cast_date ( exp )
```

**cast_decimal**

Returns the value of `exp` cast as a decimal with the precision of `numeric_exp1` and scale of `numeric_exp2`.

Syntax
```
cast_decimal ( exp [ , numeric_exp1, numeric_exp2 ] )
```

**cast_double**

Returns the value of the expression cast as a double.
Appendix D: Using the Expression Editor

Syntax

\texttt{cast\_double ( exp )}

\textbf{cast\_double\_precision}

Returns the value of the expression cast as a double.

\textbf{Syntax}

\texttt{cast\_double\_precision ( exp )}

\textbf{cast\_float}

Returns the value of the expression cast as a float.

\textbf{Syntax}

\texttt{cast\_float ( exp )}

\textbf{cast\_integer}

Returns the value of the expression cast as an integer.

\textbf{Syntax}

\texttt{cast\_integer ( exp )}

\textbf{cast\_longvarchar}

Returns the value of the expression cast as a longvarchar.

\textbf{Syntax}

\texttt{cast\_longvarchar ( string\_exp )}

\textbf{cast\_smallint}

Returns the value of the expression cast as a smallint.

\textbf{Syntax}

\texttt{cast\_smallint ( exp )}

\textbf{cast\_time}

Returns the value of the expression cast as a time value.

\textbf{Syntax}

\texttt{cast\_time ( string\_exp )}

\textbf{cast\_timestamp}

Returns the value of the expression cast as a datetime.

\textbf{Syntax}

\texttt{cast\_timestamp ( exp )}

\textbf{cast\_varchar}

Returns the value of the expression cast as a varchar with length.

\textbf{Syntax}

\texttt{cast\_varchar ( exp, integer\_exp )}
Appendix D: Using the Expression Editor

**log**
Returns the natural logarithm of numeric_exp.

**Syntax**
log ( numeric_exp )

**log10**
Returns the base ten logarithm of numeric_exp.

**Syntax**
log10 ( numeric_exp )

**rand**
Generates a random number using integer_exp as a seed value.

**Syntax**
rand ( integer_exp )

**DB2 Trigonometry**

**acos**
Returns the arccosine of numeric_exp in radians. The arccosine is the angle whose cosine is numeric_exp.

**Syntax**
acos ( numeric_exp )

**asin**
Returns the arcsine of numeric_exp in radians. The arcsine is the angle whose sine is numeric_exp.

**Syntax**
asin ( numeric_exp )

**atan**
Returns the arctangent of numeric_exp in radians. The arctangent is the angle whose tangent is numeric_exp.

**Syntax**
atan ( numeric_exp )

**atan2**
Returns the arctangent of the x and y coordinates specified by numeric_exp1 and numeric_exp2, respectively, in radians. The arctangent is the angle whose tangent is numeric_exp2 / numeric_exp1.

**Syntax**
atan2 ( numeric_exp1, numeric_exp2 )

**cos**
Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
cos ( numeric_exp )
Appendix D: Using the Expression Editor

**cot**
Returns the cotangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
cot ( numeric_exp )

**degrees**
Returns numeric_exp radians converted to degrees.

**Syntax**
degrees ( numeric_exp )

**sin**
Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
sin ( numeric_exp )

**tan**
Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
tan ( numeric_exp )

**Informix**

**cardinality**
Returns the number of elements in a collection column (SET, MULTISET, LIST).

**Syntax**
cardinality ( string_exp )

**char_length**
Returns the number of logical characters (which can be distinct from the number of bytes in some East Asian locales) in string_exp.

**Syntax**
char_length ( string_exp )

**date**
Returns the date value of either string_exp or date_exp or int_exp

**Syntax**
date ( string_exp | date_exp | int_exp )

**day**
Returns an integer that represents the day of the month.

**Syntax**
day ( date_exp )
extend

The extend function adjusts the precision of a DATETIME or DATE expression. The expression cannot be a quoted string representation of a DATE value. If you do not specify first and last qualifiers, the default qualifiers are YEAR TO FRACTION(3). If the expression contains fields that are not specified by the qualifiers, the unwanted fields are discarded. If the first qualifier specifies a larger (that is, more significant) field than what exists in the expression, the new fields are filled in with values returned by the CURRENT function. If the last qualifier specifies a smaller field (that is, less significant) than what exists in the expression, the new fields are filled in with constant values. A missing MONTH or DAY field is filled in with 1, and the missing HOUR to FRACTION fields are filled in with 0.

Syntax
extend ( date_exp , ' { ' YEAR TO SECOND ' } ' )

Example
EXTEND (some_date_column , {YEAR TO SECOND} )

hex

Returns the hexadecimal encoding of an integer integer_exp.

Syntax
hex ( integer_exp )

initcap

Returns string_exp, with the first letter of each word in uppercase, all other letters in lowercase. With this function, a word begins after any character other than a letter. Thus, in addition to a blank space, symbols such as commas, periods, colons, and so on, introduce a new word..

Syntax
initcap ( string_exp )

length

Returns the number of bytes in string_exp, which is not including any trailing blank spaces. For BYTE or TEXT string_exp, LENGTH returns the full number of bytes, including any trailing blank spaces.

Syntax
length ( string_exp )

lpad

Returns a copy of string_exp1 that is left-padded (string_exp2) to the total number of characters specified by integer_exp. The sequence of string_exp2 occurs as many times as necessary to make the return string the length specified by integer_exp.

Syntax
lpad ( string_exp1, integer_exp, string_exp2 )

mdy

Returns a type DATE value with three expressions that evaluate to integers that represent the month(integer_exp1), day(integer_exp2), and year(integer_exp3).

Syntax
mdy ( integer_exp1, integer_exp2, integer_exp3 )

month

Returns an integer corresponding to the month portion of date_exp.
Appendix D: Using the Expression Editor

**Syntax**

```sql
month ( date_exp )
```

**octet_length**

Returns the number of bytes in string_exp, including any trailing spaces.

**Syntax**

```sql
octet_length ( string_exp )
```

**replace**

Returns a copy of string_exp1 in which every occurrence of string_exp2 is replaced by string_exp3. If you omit the string_exp3 option, every occurrence of string_exp2 is omitted from the return string.

**Syntax**

```sql
replace ( string_exp1, string_exp2 [ , string_exp3 ] )
```

**round**

Returns the rounded value of an numeric_exp. If you omit the integer_exp, the value is rounded to zero digits or to the units place. The digit range of 32 (+ and -) refers to the entire decimal value.

**Syntax**

```sql
round ( numeric_exp [ , integer_exp ] )
```

**rpad**

Returns a copy of string_exp1 that is right-padded (string_exp2) to the total number of characters specified by integer_exp. The sequence of string_exp2 occurs as many times as necessary to make the return string the length specified by integer_exp.

**Syntax**

```sql
rpad ( string_exp1, integer_exp, string_exp2 )
```

**substr**

Returns the substring of string_exp that starts at position integer_exp1. The first character in string_exp is at position 1. integer_exp2 can be used to select fewer characters, by default it selects character to the end of the string.

**Syntax**

```sql
substr ( string_exp, integer_exp1 [ , integer_exp2 ] )
```

**to_char**

Returns the character string of date_exp with the specified string_exp formatting. You can use this function only with built-in data types.

**Syntax**

```sql
to_char ( date_exp, string_exp )
```

**to_date**

Returns the string_exp1 as a date according to the date format you specify in the string_exp2 parameter. If string_exp1 is NULL, then a NULL value is returned.

**Syntax**

```sql
to_date ( string_exp1, string_exp2 )
```
trunc

Returns the truncated value of a numeric_exp. If you omit integer_exp, the value is truncated to zero digits or to the unit's place. The digit limitation of 32 (+ and -) refers to the entire decimal value.

Syntax

\[
\text{trunc ( numeric\_exp [ , integer\_exp ] )}
\]

weekday

Returns an integer that represents the day of the week; zero (0) represents Sunday, one (1) represents Monday, and so on.

Syntax

\[
\text{weekday ( date\_exp )}
\]

year

Returns a four-digit integer that represents the year.

Syntax

\[
\text{year ( date\_exp )}
\]

Informix Math

log10

Returns the log of a numeric_exp to base 10.

Syntax

\[
\text{log10 ( numeric\_exp )}
\]

logn

Returns the natural logarithm of a numeric_exp.

Syntax

\[
\text{logn ( numeric\_exp )}
\]

root

Returns the root value of a numeric_exp. Requires at least one numeric argument (the radians argument). If only the numeric_exp1 is supplied, the value 2 is used as a default value for numeric_exp2; 0 cannot be used as the value of numeric_exp2.

Syntax

\[
\text{root ( numeric\_exp1[ , numeric\_exp2 ] )}
\]

Informix Trigonometry

acos

Returns the arccosine of numeric_exp in radians. The arccosine is the angle whose cosine is numeric_exp.

Syntax

\[
\text{acos ( numeric\_exp )}
\]
Appendix D: Using the Expression Editor

**asin**
Returns the arcsine of numeric_exp in radians. The arcsine is the angle whose sine is numeric_exp.

**Syntax**
\[
\text{asin ( numeric\_exp )}
\]

**atan**
Returns the arctangent of numeric_exp in radians. The arctangent is the angle whose tangent is numeric_exp.

**Syntax**
\[
\text{atan ( numeric\_exp )}
\]

**atan2**
Returns the arctangent of the x and y coordinates specified by numeric_exp1 and numeric_exp2, respectively, in radians. The arctangent is the angle whose tangent is numeric_exp1.

**Syntax**
\[
\text{atan2 ( numeric\_exp1, numeric\_exp2 )}
\]

**cos**
Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
\[
\text{cos ( numeric\_exp )}
\]

**sin**
Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
\[
\text{sin ( numeric\_exp )}
\]

**tan**
Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
\[
\text{tan ( numeric\_exp )}
\]

**MS Access**

**ascii**
Returns a number representing the ascii code value of the leftmost character of string_exp.

**Syntax**
\[
\text{ascii(string\_exp)}
\]

**ceiling**
Returns the smallest integer greater than or equal to numeric_exp.

**Syntax**
\[
\text{ceiling(numeric\_exp)}
\]
Appendix D: Using the Expression Editor

**chr**

Returns the character that has the ASCII code value specified by integer_exp. integer_exp should be between 0 and 255.

**Syntax**

```
chr(integer_exp)
```

**concat**

Returns a string that is the result of concatenating string_exp1 to string_exp2.

**Syntax**

```
concat(string_exp1, string_exp2)
```

**curdate**

Returns a date value representing the current date of the computer that the database software runs on.

**Syntax**

```
curdate()
```

**curtime**

Returns a time value representing the current time of the computer that the database software runs on.

**Syntax**

```
curtime()
```

**dayname**

Returns a character string containing the data source_specific name of the day (for example, Sunday through Saturday or Sun. through Sat. for a data source that uses English, or Sonntag through Samstag for a data source that uses German) for the day portion of date_exp.

**Syntax**

```
dayname(date_exp)
```

**dayofmonth**

Returns the day of the month (1-31) from date_exp. Returns the days field (a signed integer) from interval_exp.

**Syntax**

```
dayofmonth(date_exp|interval_exp)
```

**dayofweek**

Returns the day of the week in date_exp as an integer in the range 1 to 7, where 1 represents Monday.

**Syntax**

```
dayofweek(date_exp)
```

**dayofyear**

Returns the day of the year in date_exp as an integer in the range 1 to 366.

**Syntax**

```
dayofyear(date_exp)
```
Appendix D: Using the Expression Editor

**downshift**

Returns string\_exp with all uppercase characters shifted to lowercase.

**Syntax**

downshift(string\_exp)

**hour**

Returns the hour (an integer from 0, which is midnight, to 23, which is 11:00 pm) from time\_exp.

**Syntax**

hour(time\_exp)

**instr**

Searches string\_exp1 for the first occurrence of string\_exp2. Returns an integer specifying the position of string\_exp2. The optional argument integer\_exp1 sets the starting position for the search. If omitted, the search begins at the first character position of string\_exp1. The optional argument integer\_exp2 specifies the type of string comparison. integer\_exp1 is required if integer\_exp2 is specified.

**Syntax**

instr ([integer\_exp1,] string\_exp1, string\_exp2 [ , integer\_exp2 ])

**lcase**

Returns string\_exp with all uppercase characters shifted to lowercase.

**Syntax**

lcase(string\_exp)

**left**

Returns the leftmost integer\_exp characters of string\_exp.

**Syntax**

left(string\_exp, integer\_exp)

**length**

Returns the number of characters in string\_exp, excluding trailing blanks and the string termination character.

**Syntax**

length(string\_exp)

**locate**

Returns the starting position of the first occurrence of string\_exp1 within string\_exp2. The search starts at position start (integer\_exp) of string\_exp2. The first character in a string is at position 1. If string\_exp1 is not found then zero is returned.

**Syntax**

locate(string\_exp1, string\_exp2 [ , integer\_exp ])

**ltrim**

Returns string\_exp with leading spaces removed.

**Syntax**

ltrim(string\_exp)
**minute**

Returns the minute (an integer from 0-59) from time_exp.

**Syntax**

\[ \text{minute(time\_exp)} \]

**month**

Returns the month (an integer from 1-12) from date_exp.

**Syntax**

\[ \text{month(date\_exp)} \]

**monthname**

Returns a character string containing the data source specific name of the month (for example, January through December or Jan. through Dec. for a data source that uses English, or Januar through Dezember for a data source that uses German) for the month portion of date_exp.

**Syntax**

\[ \text{monthname(date\_exp)} \]

**now**

Returns a datetime value representing the current date and time of the computer that the database software runs on.

**Syntax**

\[ \text{now()} \]

**position**

Returns the starting position of string_exp1 in string_exp2. The first character in a string is at position 1.

**Syntax**

\[ \text{position(string\_exp1, string\_exp2)} \]

**quarter**

Returns the quarter in date_exp as a number in the range 1 to 4, where 1 represents January 1 through March 31.

**Syntax**

\[ \text{quarter(date\_exp)} \]

**right**

Returns the rightmost integer_exp characters of string_exp.

**Syntax**

\[ \text{right(string\_exp, integer\_exp)} \]

**round**

Returns numeric_exp rounded to the nearest value integer_exp places right of the decimal point. If integer_exp is negative, numeric_exp is rounded to the nearest value absolute (integer_exp) places to the left of the decimal point.

**Syntax**

\[ \text{round(numeric\_exp, integer\_exp)} \]
Appendix D: Using the Expression Editor

rtrim

Returns string_exp with trailing spaces removed.

Syntax
rtrim(string_exp)

sign

Returns an indicator of the sign of numeric_exp: +1 if numeric_exp is positive, 0 if zero or -1 if negative.

Syntax
sign(numeric_exp)

space

Returns a string consisting of integer_exp spaces.

Syntax
space(integer_exp)

substr

Returns the substring of string_exp that starts at position integer_exp1 for integer_exp2 characters. The first character in string_exp is at position 1.

Syntax
substr(string_exp, integer_exp1, integer_exp2)

substring

Returns the substring of string_exp that starts at position integer_exp1 for integer_exp2 characters. The first character in string_exp is at position 1.

Syntax
substring(string_exp, integer_exp1, integer_exp2)

truncate

Returns string_exp with trailing spaces removed.

Syntax
truncate(string_exp)

ucase

Returns string_exp with all lowercase characters shifted to uppercase.

Syntax
ucase(string_exp)

upshift

Returns string_exp with all lowercase characters shifted to uppercase.

Syntax
upshift(string_exp)

week

Returns the week of the year in date_exp as an integer value in the range 1 to 53.
**Syntax**

`week(date_exp)`

**year**

Returns the year from `date_exp`.

**Syntax**

`year(date_exp)`

**MS Access Cast**

**cast_decimal**

Returns the value of the expression cast as a decimal.

**Syntax**

`cast_decimal(exp)`

**cast_float**

Returns the value of the expression cast as a float.

**Syntax**

`cast_float(exp)`

**cast_integer**

Returns the value of the expression cast as an integer.

**Syntax**

`cast_integer(exp)`

**cast_numeric**

Returns the value of `string_exp` cast as a numeric value.

**Syntax**

`cast_numeric(string_exp)`

**cast_real**

Returns the value of the expression cast as a real.

**Syntax**

`cast_real(exp)`

**cast_smallint**

Returns the value of the expression cast as a smallint.

**Syntax**

`cast_smallint(exp)`

**cast_varchar**

Returns the value of the expression cast as a varchar.

**Syntax**

`cast_varchar(exp)`
Appendix D: Using the Expression Editor

**MS Access Math**

**log**
Returns the natural logarithm of numeric_exp.

**Syntax**
log(numeric_exp)

**rand**
Generates a random number using integer_exp as a seed value.

**Syntax**
rand(integer_exp)

**MS Access Trigonometry**

**atan**
Returns the arctangent of numeric_exp in radians. The arctangent is the angle whose tangent is numeric_exp.

**Syntax**
atan(numeric_exp)

**cos**
Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
cos(numeric_exp)

**sin**
Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
sin(numeric_exp)

**tan**
Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
tan(numeric_exp)

**Oracle**

**add_months**
Returns the datetime resulting from adding integer_exp months to date_exp.

**Syntax**
add_months ( date_exp, integer_exp )
ascii

Returns a number representing the ascii code value of the leftmost character of string_exp, e.g. ascii('A') is 65.

**Syntax**

```plaintext
ascii ( string_exp )
```

char_length

Returns the number of characters in string_exp.

**Syntax**

```plaintext
char_length ( string_exp )
```

chr

Returns the character that has the ASCII code value specified by integer_exp. integer_exp should be between 0 and 255.

**Syntax**

```plaintext
chr ( integer_exp )
```

concat

Returns a string that is the result of concatenating string_exp1 to string_exp2.

**Syntax**

```plaintext
concat ( string_exp1, string_exp2 )
```

decode

DECODE compares expr to each search value one by one. If expr is equal to a search, then returns the corresponding result. If no match is found, then returns default. If default is omitted, then returns null.

**Syntax**

```plaintext
decode ( expr , search , result [, search , result]... [, default] )
```

dump

Returns internal representation of 'expr' with the format of numeric_exp1 starting from position numeric_exp2 for numeric_exp3.

**Syntax**

```plaintext
dump ( expr [, numeric_exp1 [, numeric_exp2 [, numeric_exp3 ] ] ] )
```

greatest

Returns the greatest value in a list of expressions.

**Syntax**

```plaintext
greatest ( exp_list )
```

initcap

Returns string_exp, with the first letter of each word in uppercase, all other letters in lowercase. Words are delimited by white space or characters that are not alphanumeric.

**Syntax**

```plaintext
initcap ( string_exp )
```
Appendix D: Using the Expression Editor

**instr**

Searches string\_exp1 from the integer\_exp1 position for the (integer\_exp2)th occurrence of string\_exp2. If integer\_exp1 is negative then the search is backwards from the end of string\_exp1. Returns an integer indicating the position of string\_exp2.

**Syntax**

`instr ( string\_exp1, string\_exp2 [ , integer\_exp1 [ , integer\_exp2 ] ] )`

**instrb**

Searches string\_exp1 from the integer\_exp1 position for the (integer\_exp2)th occurrence of string\_exp2. If integer\_exp1 is negative then the search is backwards from the end of string\_exp1. The result returned indicates the position (byte number) where search was found.

**Syntax**

`instrb ( string\_exp1, string\_exp2 [ , integer\_exp1 [ , integer\_exp2 ] ] )`

**least**

Returns the least value in a list of expressions.

**Syntax**

`least ( exp\_list )`

**length**

Returns the number of characters in string\_exp.

**Syntax**

`length ( string\_exp )`

**lengthb**

Returns the number of bytes in string\_exp.

**Syntax**

`lengthb ( string\_exp )`

**lpad**

Returns string\_exp1 padded to length integer\_exp with occurrences of string\_exp2. If string\_exp1 is longer than integer\_exp then returns the appropriate portion of string\_exp1.

**Syntax**

`lpad ( string\_exp1, integer\_exp [ , string\_exp2 ] )`

**ltrim**

Returns string\_exp1, with leading characters removed up to the first character not in string\_exp2, e.g. `ltrim('xyxXxyAB', 'xy')` returns 'XxyAB'.

**Syntax**

`ltrim ( string\_exp1 [ , string\_exp2 ] )`

**months\_between**

Returns the number of months from date\_exp1 to date\_exp2. If date\_exp1 is later than date\_exp2 then the result will be a positive number. The days and time portion of the difference are ignored, i.e. the months are not rounded, except if date\_exp1 and date\_exp2 are the last days of a month.

**Syntax**

`months\_between ( date\_exp1, date\_exp2 )`
new_time

Returns the Datetime in timezone 'new_tz' for 'datetime' in 'old_tz' timezone. 'Old_tz' and 'new_tz' can be one of 'AST', 'ADT', 'BST', 'BDT', 'CST', 'CDT', 'EST', 'EDT', 'HST', 'HDT', 'MST', 'MDT', 'NST', 'PST', 'PDT', 'YST' or 'YDT'.

Syntax
new_time ( datetime_exp, old_tz, new_tz )

next_day

Returns the datetime of the first weekday named by string_exp that is later than datetime_exp. The return value has the same hours, minutes, and seconds as datetime_exp.

Syntax
next_day ( datetime_exp, string_exp )

nls_initcap

Returns string_exp1 with the first letter of each word in uppercase, all other letters in lowercase. Words are delimited by white space or characters that are not alphanumeric. string_exp2 specifies the sorting sequence.

Syntax
nls_initcap ( string_exp1 [ , string_exp2 ] )

nls_lower

Returns string_exp1 with all letters in lowercase. string_exp2 specifies the sorting sequence.

Syntax
nls_lower ( string_exp1 [ , string_exp2 ] )

nls_upper

Returns string_exp1 with all letters in uppercase. string_exp2 specifies the sorting sequence.

Syntax
nls_upper ( string_exp1 [ , string_exp2 ] )

nvl

If exp is null (missing) returns constant. If exp is not null returns exp. Valid for numeric_exp, string_exp, date_exp, and time_exp.

Syntax
nvl ( exp, constant )

replace

Replaces all occurrences of string_exp2 in string_exp1 with string_exp3. If string_exp3 is not specified then it replaces all occurrences with null (i.e., removes all occurrences of string_exp2).

Syntax
replace ( string_exp1, string_exp2 [ , string_exp3 ] )

round

Returns numeric_exp rounded to the nearest value integer_exp places right of the decimal point. If integer_exp is negative, numeric_exp is rounded to the nearest value absolute (integer_exp) places to the left of the decimal point, e.g., round (125, -1) rounds to 130.
Appendix D: Using the Expression Editor

**Syntax**

`round ( numeric_exp [ , integer_exp ] )`

**rpad**

Returns `string_exp1` right-padded to length `integer_exp` with occurrences of `string_exp2`. If `string_exp1` is longer than `integer_exp` then returns the appropriate portion of `string_exp1`. If `string_exp2` is not specified then spaces are used.

**Syntax**

`rpad ( string_exp1, integer_exp [ , string_exp2 ] )`

**rtrim**

Returns `string_exp1`, with final characters removed after the last character not in `string_exp2`, e.g. `rtrim('ABxXxyx', 'xy')` returns 'ABx'. If `string_exp2` is not specified it removes the final space characters.

**Syntax**

`rtrim ( string_exp1 [ , string_exp2 ] )`

**sign**

Returns an indicator of the sign of `numeric_exp`: +1 if `numeric_exp` is positive, 0 if zero or -1 if negative.

**Syntax**

`sign ( numeric_exp )`

**soundex**

Returns a character string containing the phonetic representation of `string_exp`.

**Syntax**

`soundex ( string_exp )`

**substr**

Returns the substring of `string_exp` that starts at position `integer_exp1`. The first character in `string_exp` is at position 1. `integer_exp2` can be used to select fewer characters, by default it selects character to the end of the string.

**Syntax**

`substr ( string_exp, integer_exp1 [ , integer_exp2 ] )`

**substrb**

Same as `substr`, except that the arguments are expressed in bytes (not characters).

**Syntax**

`substrb ( string_exp, numeric_exp1 [ , numeric_exp2 ] )`

**{sysdate}**

Returns a datetime value representing the current date and time of the computer that the database software runs on.

**Syntax**

 `{ sysdate }`
to_char

Returns the string representation of exp with the format of string_exp. exp can either be a date value or a numeric value.

Syntax
to_char ( exp [ , string_exp ] )

to_date

Converts string_exp1 to a datetime value as specified by the format string_exp2. string_exp3 specifies format elements such as language.

Syntax
to_date ( string_exp1 [ , string_exp2 [ , string_exp3 ] ] )

to_number

Converts string_exp1 to a numeric value as specified by the format string_exp2. string_exp3 specifies format elements such as currency information.

Syntax
to_number ( string_exp1, string_exp2, string_exp3 )

translate

Returns string_exp1, with all occurrences of each character in string_exp2 replaced by its corresponding character in string_exp3.

Syntax
translate ( string_exp1, string_exp2, string_exp3 )

trunc

Truncates the date_exp using the format specified by string_exp. For example, if string_exp is 'YEAR' then date_exp is truncated to the first day of the year.

Syntax
trunc ( date_exp, string_exp )

trunc

Truncates digits from numeric_exp1 using numeric_exp2 as the precision.

Syntax
trunc ( numeric_exp1, numeric_exp2 )

{user}

Returns the username of the current Oracle user.

Syntax
{ user }

vsize

Returns the number of bytes in the internal representation of 'exp'. 'exp' must be a string expression.

Syntax
vsize ( exp )
**Oracle Math**

**log**
Returns the logarithm of numeric_exp2 to the base numeric_exp1.

**Syntax**
```
log ( numeric_exp1, numeric_exp2 )
```

**Oracle Trigonometry**

**acos**
Returns the arccosine of numeric_exp in radians. The arccosine is the angle whose cosine is numeric_exp.

**Syntax**
```
acos ( numeric_exp )
```

**asin**
Returns the arcsine of numeric_exp in radians. The arcsine is the angle whose sine is numeric_exp.

**Syntax**
```
asin ( numeric_exp )
```

**atan**
Returns the arctangent of numeric_exp in radians. The arctangent is the angle whose tangent is numeric_exp.

**Syntax**
```
atan ( numeric_exp )
```

**atan2**
Returns the arctangent of the x and y coordinates specified by numeric_exp1 and numeric_exp2, respectively, in radians. The arctangent is the angle whose tangent is numeric_exp2 / numeric_exp1.

**Syntax**
```
atan2 ( numeric_exp1 ,numeric_exp2 )
```

**cos**
Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
```
cos ( numeric_exp )
```

**cosh**
Returns the hyperbolic cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
```
cosh ( numeric_exp )
```

**sin**
Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.
Syntax
sin ( numeric_exp )

sinh
Returns the hyperbolic sine of numeric_exp where numeric_exp is an angle expressed in radians.
Syntax
sinh ( numeric_exp )

tan
Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.
Syntax
tan ( numeric_exp )
tanh
Returns the hyperbolic tangent of numeric_exp where numeric_exp is an angle expressed in radians.
Syntax	tanh ( numeric_exp )

Red Brick

concat
This function concatenates character strings and returns the concatenated string of characters.
Syntax
concat ( string_exp1 , string_exp2 )
current_user
Returns the database username (authorization ID) of the current user.
Syntax
current_user
date
This function creates a date value from a character string or a timestamp expression and returns a date data type. The expression can be either characters or timestamp.
Syntax
date ( expression )
dateadd
This function adds an interval to a datetime value and returns a result that is the same datetime data type as that of datetime_expression. The datepart refers to year, month, day, hour, minute, second. The interval must be an integer and datetime_exp can be date, time or timestamp.
Syntax
dateadd ( { datepart }, interval, datetime_exp )
Appendix D: Using the Expression Editor

**datediff**

This function finds the difference between two datetime expressions and returns an integer result in datepart units. The datepart refers to year, month, day, hour, minute, second. The datetime_exp can be date, time or timestamp.

**Syntax**

datediff ( { datepart }, datetime_exp, datetime_exp )

**datename**

This function extracts the specified datepart component and returns its value as a character string. The datepart refers to year, month, day, hour, minute, second. The datetime_exp can be date, time or timestamp.

**Syntax**

datename ( { datepart }, datetime_exp )

**dec**

This function converts a specified value to a decimal value and returns a value with the data type decimal (precision, scale). The default value of precision is 9. The default value of scale is 0.

**Syntax**

dec ( expression, [precision, scale] )

**decode**

This function compares and converts an expression to another value. If the expression matches target, it is replaced by the corresponding replacement; otherwise the expression is replaced by default or by NULL if no default is specified. The expressions can be any data type and all expressions must be the same data type.

**Syntax**

decode ( expression, target, replacement [,default] )

**float**

This function converts a specified value into a double-precision floating-point value.

**Syntax**

float ( numeric_exp )

**ifnull**

This function tests an expression for missing values and replaces each one with a specified value. If expression is NULL, this function returns substitute; otherwise it returns the value of the expression. The expressions can be any data type and all expressions must be the same data type.

**Syntax**

ifnull ( expression, substitute )

**int**

This function converts a specified numeric string into an integer value and returns an integer value. If the argument is null, this function returns NULL.

**Syntax**

int ( numeric_exp )
length

If the argument is not null, this function returns an integer result specifying the number of characters in the string; otherwise the result is NULL.

Syntax

length ( string_exp )

lengthb

If the argument is not null, this function returns an integer result specifying the number of bytes in the string. If the argument is null, the result is NULL.

Syntax

lengthb ( string_exp )

ltrim

If the argument is not null, this function removes leading blanks from the character string; otherwise the result is NULL.

Syntax

ltrim ( string_exp )

nullif

This function returns NULL if both expressions have the same value. If the expressions have different values, the value of the first expression is returned. The exp1 and exp2 can be any data type and must be the same data type.

Syntax

nullif ( exp1, exp2 )

positionb

If the first string_exp is located, this function returns an integer that is relative to the beginning byte position of the first string_exp in the second string_exp. If the first string_exp is not located, the result is 0. If the first string_exp is of zero length, the result is 1. If the first string_exp is null, an error message is returned. If the second string_exp is null, the result is 0.

Syntax

positionb ( string-exp, string_exp )

real

This function returns a real value. If the argument is null, this function returns NULL.

Syntax

real ( numeric_exp )

rtrim

If the argument is not null, this function removes trailing blanks from the character string; otherwise the result is NULL.

Syntax

rtrim ( string_exp )

sign

This function calculates the sign of the expression, and returns 1 for a positive value, –1 for a negative value, and 0 for zero.
Appendix D: Using the Expression Editor

**Syntax**

```
sign ( numeric_exp )
```

**string**

This function converts numeric or datetime values to character strings. The expression can be numeric or datetime.

**Syntax**

```
string ( expression [, length [, scale]] )
```

**substr**

If the first argument is not null, this function returns the substring that begins at position start and continues for length characters. If length is not specified, this function returns a substring from start to the end of string_exp.

**Syntax**

```
substr ( string_exp, start_integer, length_integer )
```

**substrb**

If the first argument is not null, this function returns the substring that begins at position start and continues for length bytes. If length is not specified, this function returns a substring from start to the end of string_exp.

**Syntax**

```
substrb ( string_exp, start_integer, length_integer )
```

**time**

This function creates a time value from a character string or a time-stamp data type expression.

**Syntax**

```
time ( expression )
```

**timestamp**

This function creates a time-stamp value from a character string.

**Syntax**

```
timestamp ( timestamp_exp )
```

**timestamp**

This function creates a time-stamp value from time and date values. If there are two arguments, the first must be a date expression and the second must be a time expression, separated by a comma (,). If either the date expression or the time expression is null, the resulting time-stamp expression is also null.

**Syntax**

```
timestamp ( date_exp, time_exp )
```

**to_char**

This function is a datetime scalar function that operates on a date, time, or timestamp data type and returns the character string specified by a given format.

**Syntax**

```
to_char ( source_date, format_str )
```
Appendix D: Using the Expression Editor

**SQL Server**

**ascii**

Returns a number representing the ascii code value of the leftmost character of string_exp, e.g. ascii('A') is 65.

**Syntax**

ascii(string_exp)

**char**

Returns the character that has the ASCII code value specified by integer_exp. integer_exp should be between 0 and 255. For example, char(65) has the value 'A'.

**Syntax**

char(integer_exp)

**datalength**

Returns the length of the string.

**Syntax**

datalength(string_exp)

**dateadd**

Returns the date resulting from adding integer_exp units indicated by datepart(e.g. day, month, year) to date_exp.

**Syntax**

dateadd({datepart}, integer_exp, date_exp)

**datediff**

Returns the number of units indicated by datepart(e.g. day, month, year) between date_exp1 and date_exp2.

**Syntax**

datediff({datepart}, date_exp1, date_exp2)

**day**

Returns the day portion of date_exp. Same as extract(day from date_exp).

**Syntax**

day(date_exp)

**difference**

Returns an integer value representing the difference between the values returned by the data source_specific soundex function for string_exp1 and string_exp2. The value returned ranges from 0 to 4, with 4 indicating the best match. Note that 4 does not mean that the strings are equal.

**Syntax**

difference(string_exp1, string_exp2)
Appendix D: Using the Expression Editor

**getdate**

Returns a datetime value representing the current date and time of the computer that the database software runs on.

**Syntax**

getdate()

**left**

Returns the leftmost integer_exp characters of string_exp.

**Syntax**

left(string_exp, integer_exp)

**ltrim**

Returns string_exp with leading spaces removed.

**Syntax**

ltrim(string_exp)

**month**

Returns the month portion of date_exp. Same as extract(month from date_exp).

**Syntax**

month(date_exp)

**replace**

Replaces all occurrences of string_exp2 in string_exp1 with string_exp3.

**Syntax**

replace ( string_exp1 , string_exp2 , string_exp3 )

**replicate**

Returns a string consisting of string_exp repeated integer_exp times.

**Syntax**

replicate(string_exp, integer_exp)

**right**

Returns the rightmost integer_exp characters of string_exp.

**Syntax**

right(string_exp, integer_exp)

**round**

Returns numeric_exp rounded to the nearest value integer_exp places right of the decimal point.

**Syntax**

round(numeric_exp,integer_exp)

**rtrim**

Returns string_exp with trailing spaces removed.

**Syntax**

rtrim(string_exp)
**sign**

Returns an indicator of the sign of numeric_exp: +1 if numeric_exp is positive, 0 if zero or -1 if negative.

**Syntax**

\[
\text{sign(numeric\_exp)}
\]

**soundex**

Returns a four character string representing the sound of the words in string_exp.

**Syntax**

\[
\text{soundex(string\_exp)}
\]

**space**

Returns a string consisting of integer_exp spaces.

**Syntax**

\[
\text{space(integer\_exp)}
\]

**str**

Returns a string representation of numeric_exp. integer_exp1 is the length of the string returned. integer_exp2 is the number of decimal digits.

**Syntax**

\[
\text{str(numeric\_exp \ [ , integer\_exp1 \ [ , integer\_exp2 \ ] \ ])}
\]

**stuff**

Returns a string where length (integer_exp2) characters have been deleted from string_exp1 beginning at start (integer_exp1) and where string_exp2 has been inserted into string_exp1 at start. The first character in a string is at position 1.

**Syntax**

\[
\text{stuff(string\_exp1, integer\_exp1, integer\_exp2, string\_exp2)}
\]

**year**

Returns the year portion of date_exp. Same as extract(year from date_exp).

**Syntax**

\[
\text{year(date\_exp)}
\]

**SQL Server Cast**

**cast\_char**

Returns the value of the expression cast as a char.

**Syntax**

\[
\text{cast\_char(exp)}
\]

**cast\_float**

Returns the value of the expression cast as a float.

**Syntax**

\[
\text{cast\_float(exp)}
\]
Appendix D: Using the Expression Editor

**cast_integer**
Returns the value of the expression cast as an integer.

**Syntax**
cast_integer(exp)

**cast_real**
Returns the value of the expression cast as a real.

**Syntax**
cast_real(exp)

**cast_smallint**
Returns the value of the expression cast as a small integer.

**Syntax**
cast_smallint(exp)

**cast_timestamp**
Returns the value of the expression cast as a datetime.

**Syntax**
cast_timestamp(exp)

**cast_varchar**
Returns the value of the expression cast as a varchar.

**Syntax**
cast_varchar(exp)

**SQL Server Math**

**log**
Returns the natural logarithm of numeric_exp.

**Syntax**
log(numeric_exp)

**log10**
Returns the base ten logarithm of numeric_exp.

**Syntax**
log10(numeric_exp)

**pi**
Returns the constant value of pi as a floating point value.

**Syntax**
pi()

**rand**
Generates a random number using integer_exp as a seed value.
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Syntax

rand(integer_exp)

SQL Server Trigonometry

cos
Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

Syntax
cos(numeric_exp)

cot
Returns the cotangent of numeric_exp where numeric_exp is an angle expressed in radians.

Syntax
cot(numeric_exp)

degrees
Returns numeric_exp radians converted to degrees.

Syntax
degrees(numeric_exp)

radians
Returns the number of radians converted from numeric_exp degrees.

Syntax
radians(numeric_exp)
Appendix D: Using the Expression Editor

**sin**

Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**

```
sin(numeric_exp)
```

**tan**

Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**

```
tan(numeric_exp)
```

**Teradata**

**account**

This function returns the account string for the current user.

**Syntax**

```
{account}
```

**bytes**

This function returns the number of bytes contained in the specified byte string. The byte_exp are restricted to BYTE or VARBYTE.

**Syntax**

```
bytes ( byte_exp )
```

**case_n**

This function evaluates a list of conditions and returns the position of the first condition that evaluates to TRUE, provided that no prior condition in the list evaluates to UNKNOWN. The NO CASE is an optional condition that evaluates to TRUE if every conditional_expression in the list evaluates to FALSE. The NO CASE OR UNKNOWN condition evaluates to TRUE if every conditional_expression in the list evaluates to FALSE, or if a conditional_expression evaluates to UNKNOWN and all prior conditions in the list evaluate to FALSE. The UNKNOWN is an optional condition that evaluates to TRUE if a conditional_expression evaluates to UNKNOWN and all prior conditions in the list evaluate to FALSE.

**Syntax**

```
case_n ( condition_exp_list [, NO CASE | UNKNOWN | NO CASE OR UNKNOWN [, UNKNOWN ]])
```

**char2hexint**

This function returns the hexadecimal representation for a character string.

**Syntax**

```
char2hexint ( string_exp )
```

**characters**

This function returns an integer value representing the number of logical characters or bytes contained in the specified operand string.

**Syntax**

```
characters ( string_exp )
```
database

This function returns the name of the default database for the current user.

**Syntax**

{database}

date

This function returns the current date.

**Syntax**

{date}

format

This function returns the declared format for the named expression. The data type returned by a FORMAT phrase is a variable character string of up to 30 characters.

**Syntax**

format ( expression )

index

This function returns the position in string_exp1 where string_exp2 starts.

**Syntax**

index ( string_exp1, string_exp2 )

log

Computes the base 10 logarithm of an argument. The numeric_exp is a non-zero, positive numeric expression.

**Syntax**

log ( numeric_exp )

nullif

This function returns NULL if scalar_exp1 and scalar_exp2 are equal. Otherwise, it returns its first argument, scalar_exp1. The scalar_exp1 and scalar_exp2 can be any data type.

**Syntax**

nullif ( scalar_exp1, scalar_exp2 )

nullifzero

This function converts data from zero to null to avoid problems with division by zero.

**Syntax**

nullifzero ( numeric_exp )

profile

This function returns the current profile for the session or NULL if none.

**Syntax**

{profile}
Appendix D: Using the Expression Editor

random

This function returns a random integer number for each row of the results table. The lower_bound and upper_bound are integer constants. The limits for lower_bound, upper_bound range from -2147483648 to 2147483647, inclusive. The upper_bound must be greater than or equal to lower_bound.

Syntax

```
random ( lower_bound, upper_bound )
```

range_n

This function evaluates a test_exp and maps the result into a list of specified ranges and returns the position of the range in the list. start_exp and end_exp are constants or constant expressions and must be the same data type as test_exp. Use an asterisk (*) for the starting boundary of the first range to indicate the lowest possible value. Use an asterisk (*) for the ending boundary of the last range to indicate the highest possible value. An asterisk is compatible with any data type. The range_size is a constant or constant expression. A range that specifies an EACH phrase is equivalent to a series of ranges. The value of range_size must be greater than zero. NO RANGE is an optional range to handle a test_exp that does not map into any of the specified ranges. The NO RANGE OR UNKNOWN option handles a test_exp that does not map into any of the specified ranges, or a test_exp that evaluates to NULL when RANGE_N does not specify the range BETWEEN * AND *. UNKNOWN is an option to handle a test_expression that evaluates to NULL when RANGE_N does not specify the range BETWEEN * AND *.

Syntax

```
range_n ( test_exp BETWEEN start_exp | start_exp_list | * AND end_exp | * [ EACH range_size [, NO RANGE [ OR UNKNOWN | , UNKNOWN ] | UNKNOWN ] ])
```

role

This function returns the current role for the session or NULL if none.

Syntax

```
{role}
```

session

This function returns the number of the session for the current user.

Syntax

```
{session}
```

soundex

This function returns a character string that represents the Soundex code for string_exp.

Syntax

```
soundex ( string_exp )
```

time

This function returns the current time based on a 24-hour day.

Syntax

```
{time}
```

type

This function returns the data type defined for an expression.

Syntax

```
type ( expression )
```
user

This function returns the user name of the current user.

Syntax
{user}

vargraphic

This function Returns a character string that represents the vargraphic code for string_exp.

Syntax
vargraphic ( string_exp )

zeroifnull

This function converts data from null to 0 to avoid cases where a null result creates an error. If the numeric_exp is not null, it returns the value of the numeric_exp, if numeric_exp is a character string, it is converted to a numeric value of FLOAT data type. If the numeric_exp is null or zero, it returns zero.

Syntax
zeroifnull ( numeric_exp )

Teradata Trigonometry

acos

Returns the arccosine of numeric_exp in radians. The arccosine is the angle whose cosine is numeric_exp. The values of numeric_exp must be between -1 and 1, inclusive.

Syntax
acos ( numeric_exp )

acosh

Returns the inverse hyperbolic cosine of an argument. The numeric_exp can be any real number equal to or greater than 1.

Syntax
acosh ( numeric_exp )

asin

Returns the arcsine of numeric_exp in radians. The arcsine is the angle whose sine is numeric_exp. The values of numeric_exp must be between -1 and 1, inclusive.

Syntax
asin ( numeric_exp )

asinh

Returns the inverse hyperbolic sine of an argument. The numeric_exp can be any real number.

Syntax
asinh ( numeric_exp )

atan

Returns the arctangent of numeric_exp in radians. The arctangent is the angle whose tangent is numeric_exp.
Appendix D: Using the Expression Editor

**Syntax**
atan ( numeric_exp )

**atan2**
Returns the arctangent of the x and y coordinates specified by numeric_exp1 and numeric_exp2, respectively, in radians. ATAN2(x,y) equals ATAN(y/x), except that x can be 0 in ATAN2(x,y). The returned angle is between - and $\pi$ radians, excluding $\pi$.

**Syntax**
atan2 ( numeric_exp1, numeric_exp2 )

**atanh**
Returns the inverse hyperbolic tangent of an argument. The numeric_exp can be any real number between 1 and -1, excluding 1 and -1.

**Syntax**
atanh (numeric_exp )

**cos**
Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
 cos ( numeric_exp )

**cosh**
Returns the hyperbolic cosine of an argument. The numeric_exp can be any real number.

**Syntax**
cosh ( numeric_exp )

**sin**
Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
 sin ( numeric_exp )

**sinh**
Returns the hyperbolic sine of an argument. The numeric_exp can be any real number.

**Syntax**
sinh ( numeric_exp )

**tan**
Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
tan ( numeric_exp )

**tanh**
Returns the hyperbolic tangent of an argument. The numeric_exp can be any real number.

**Syntax**
tanh ( numeric_exp )
**Appendix D: Using the Expression Editor**

**SAP BW**

**SAP BW OLAP**

**characteristicValue**

Creates the unique SAP BW identifier for a query item value that represents an SAP BW key value. Useful for identifying leaf-level query item values in unbalanced hierarchies.

**Syntax**

`characteristicValue ( query_subject , query_item_value )`

**SAP BW Trigonometry**

**arccos**

Returns the arccosine of numeric_exp in radians. The arccosine is the angle whose cosine is numeric_exp.

**Syntax**

`arccos ( numeric_exp )`

**arcsin**

Returns the arcsine of numeric_exp in radians. The arcsine is the angle whose sine is numeric_exp.

**Syntax**

`arcsin ( numeric_exp )`

**arctan**

Returns the arctangent of numeric_exp in radians. The arctangent is the angle whose tangent is numeric_exp.

**Syntax**

`arctan ( numeric_exp )`

**cos**

Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**

`cos ( numeric_exp )`

**sin**

Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**

`sin ( numeric_exp )`

**tan**

Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**

`tan ( numeric_exp )`
Appendix D: Using the Expression Editor

**coshyp**
Returns the hyperbolic cosine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
coshyp ( numeric_exp )

**sinhyp**
Returns the hyperbolic sine of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
sinhyp ( numeric_exp )

**tanhyp**
Returns the hyperbolic tangent of numeric_exp where numeric_exp is an angle expressed in radians.

**Syntax**
tanhyp ( numeric_exp )

**SAP BW Math**

**log10**
Returns the base ten logarithm of numeric_exp.

**Syntax**
log10 ( numeric_exp )

**Sybase**

**ascii**
Returns a number representing the ascii code value of the leftmost character of string_exp.

**Syntax**
ascii ( string_exp )

**Example**
ascii ( 'A' )
Result: 65

**char**
Converts a single-byte integer value to a character value. char is usually used as the inverse of ascii. integer_exp must be between 0 and 255. Returns a char datatype. If the resulting value is the first byte of a multibyte character, the character may be undefined.

**Syntax**
char ( integer_exp )

**charindex**
Searches string_exp2 for the first occurrence of string_exp1 and returns an integer, which represents its starting position. If string_exp1 is not found, it returns 0. If string_exp1 contains wildcard characters, charindex treats it them as literals.
Appendix D: Using the Expression Editor

Syntax
charindex ( string_exp1, string_exp2 )

dateadd
Returns the date resulting from adding integer_exp units indicated by datepart(e.g. day, month, year) to date_exp.

Syntax
dateadd ( ' { ' datepart ' } ' , integer_exp, date_exp )

datediff
Returns the number of units indicated by datepart(e.g. day, month, year) between date_exp1 and date_exp2.

Syntax
datediff ( ' { ' datepart ' } ' , date_exp1, date_exp2 )

datename
Returns part of a datetime, smalldatetime, date or time value as an ASCII string

Syntax
datename ( ' { ' datepart ' } ' , date_exp )

datepart
Returns part of a datetime, smalldatetime, date or time value (for example, the month) as an integer

Syntax
datepart ( ' { ' datepart ' } ' , date_exp )

difference
Returns an integer value representing the difference between the values returned by the data source_specific soundex function for string_exp1 and string_exp2. The value returned ranges from 0 to 4, with 4 indicating the best match. Note that 4 does not mean that the strings are equal.

Syntax
difference ( string_exp1, string_exp2 )

getdate
Returns current system date and time.

Syntax
getdate ()

ltrim
Returns string_exp with leading spaces removed.

Syntax
ltrim ( string_exp )
Appendix D: Using the Expression Editor

**patindex**

Returns an integer which represents the starting position if the first occurrence of string_exp1 is in the string_exp2; returns 0 if string-exp1 is not found. By default, patindex returns the offset in characters. To return offset in bytes, that is, multibyte character string, specify using bytes. The % wildcard character must precede and follow pattern in string_exp1, except when searching for first or last characters.

**Syntax**

```
patindex ( string_exp1, string_exp2 [ using {bytes | chars | characters} ] )
```

**rand**

Returns a random float value between 0 and 1, using the optional integer as a seed value.

**Syntax**

```
rand ( integer_exp )
```

**replicate**

Returns a string with the same datatype as string_exp, containing the same expression repeated integer_exp times or as many times as will fit into a 225-byte space, whichever is less.

**Syntax**

```
replicate ( string_exp, integer_exp )
```

**reverse**

Returns the reverse of the character or binary expression; if string_exp is "abcd", it returns "dcba".

**Syntax**

```
reverse ( string_exp )
```

**right**

Returns the rightmost integer_exp characters of string_exp.

**Syntax**

```
right ( string_exp, integer_exp )
```

**round**

Returns numeric_exp rounded to the nearest value integer_exp places right of the decimal point.

**Syntax**

```
round ( numeric_exp, integer_exp )
```

**rtrim**

Returns string_exp with trailing spaces removed.

**Syntax**

```
rtrim ( string_exp )
```

**soundex**

Returns a four-character soundex code for character strings that are composed of a contiguous sequence of valid single- or double byte Roman letter.

**Syntax**

```
soundex ( string_exp )
```
Appendix D: Using the Expression Editor

**space**

Returns a string with the indicated number of single-byte space.

**Syntax**

```
space ( integer_exp )
```

**str**

Returns a string representation of numeric_exp. integer_exp1 is the length of the string returned. integer_exp2 is the number of decimal digits. length and decimal are optional (default length is 10; default decimal is 0.)

**Syntax**

```
str ( numeric_exp [ , integer_exp1 [ , integer_exp2 ] ] )
```

**stuff**

Delete integer_exp2 characters from string_exp1 at integer_exp1, and then insert string_exp2 into string_exp1 at integer_exp. To delete characters without inserting other characters, string_exp2 should be NULL, not " ", which indicates a single space.

**Syntax**

```
stuff ( string_exp1, integer_exp1, integer_exp2, string_exp2 )
```

**substring**

Returns the substring of string_exp that starts at position integer_exp1. integer_exp2 specifies the number of characters in the substring.

**Syntax**

```
substring ( string_exp, integer_exp1, integer_exp2 )
```

**to_unichar**

Returns a unichar expression having the value of the integer_exp. If the integer_exp is in the range 0xD800..0xDFFF, the operation is aborted. If the integer_exp is in the range 0..0xFFFF, a single Unicode value is returned. If the integer_exp is in the range 0x10000..0x10FFFF, a surrogate pair is returned.

**Syntax**

```
to_unichar ( integer_exp )
```

**uhighsurr**

Returns 1 if the Unicode value at integer_exp is the high half of a surrogate pair (which should appear first in the pair). Otherwise, returns 0. This function allows you to write explicit code for surrogate handling. Particularly, if a substring starts on a Unicode character where uhighsurr() is true, extract a substring of at least 2 Unicode values, as substr() does not extract just 1. substr() does not extract half of a surrogate pair.

**Syntax**

```
uhighsurr ( string_exp, integer_exp )
```

**ulowsurr**

Returns 1 if the Unicode value at integer_exp is the low half of a surrogate pair (which should appear second in the pair). Otherwise, returns 0. This function allows you to explicitly code around the adjustments performed by substr(), stuff(), and right(). Particularly, if a substring ends on a Unicode value where ulowsurr() is true, extract a substring of 1 less characters (or 1 more), since substr() does not extract a string that contains an unmatched surrogate pair.
Appendix D: Using the Expression Editor

**Syntax**

```
ulowsurr ( string_exp, integer_exp )
```

**usscalar**

Returns the Unicode scalar value for the first Unicode character in string_exp. If the first character is not the high-order half of a surrogate pair, then the value is in the range 0..0xFFFF. If the first character is the high-order half of a surrogate pair, a second value must be a low-order half, and the return value is in the range 0x10000..0x10FFFF. If this function is called on a uchar_expr containing an unmatched surrogate half and the operation aborted.

**Syntax**

```
usscalar ( string_exp )
```

**Sybase Math**

**log**

Returns the natural logarithm of numeric_exp.

**Syntax**

```
log ( numeric_exp )
```

**log10**

Returns the base ten logarithm of numeric_exp.

**Syntax**

```
log10 ( numeric_exp )
```

**pi**

Returns the constant value of pi as a floating point value.

**Syntax**

```
pi ()
```

**sign**

Returns an indicator of the sign of numeric_exp: +1 if numeric_exp is positive, 0 if zero or -1 if negative.

**Syntax**

```
sign ( numeric_exp )
```

**Sybase Trigonometry**

**acos**

Returns the arccosine of numeric_exp in radians. The arccosine is the angle whose cosine is numeric_exp.

**Syntax**

```
acos ( numeric_exp )
```

**asin**

Returns the arcsine of numeric_exp in radians. The arcsine is the angle whose sine is numeric_exp.

**Syntax**

```
asin ( numeric_exp )
```
atan
Returns the arctangent of numeric_exp in radians. The arctangent is the angle whose tangent is numeric_exp.

Syntax
atan ( numeric_exp )

tan
Returns the tangent of numeric_exp where numeric_exp is an angle expressed in radians.

Syntax
tan ( numeric_exp )

atn2
Returns the angle (in radians) whose tangent is (numeric_exp1/numeric_exp2).

Syntax
atn2 ( numeric_exp1, numeric_exp2 )

cos
Returns the cosine of numeric_exp where numeric_exp is an angle expressed in radians.

Syntax
cos ( numeric_exp )

cot
Returns the cotangent of numeric_exp where numeric_exp is an angle expressed in radians.

Syntax
cot ( numeric_exp )

degrees
Returns numeric_exp radians converted to degrees.

Syntax
degrees ( numeric_exp )

radians
Return the degree equivalent of numeric_exp. Results are of the same type as numeric. For expressions of type numeric or decimal, the results have an internal precision of 77 and a scale equal to that of the numeric expression. When the money datatype is used, internal conversion to float may cause loss of precision.

Syntax
radians ( numeric_exp )

sin
Returns the sine of numeric_exp where numeric_exp is an angle expressed in radians.

Syntax
sin ( numeric_exp )

Report functions
Appendix D: Using the Expression Editor

AsOfDate

Returns the date value of the As of Time expression, if it is defined. Otherwise, AsofDate returns the report execution date.

Syntax
AsOfDate()

AsOfTime

Returns the time value of the As of Time expression, if it is defined. Otherwise, AsofTime returns the report execution time.

Syntax
AsOfTime()

BurstKey

Returns burst key.

Syntax
BurstKey()

BurstRecipients

Returns the distribution list of burst recipients.

Syntax
BurstRecipient()

GetLocale

Returns run locale (deprecated).

Syntax
GetLocale()

IsBursting

Returns boolean 1 (TRUE) when report will be distributed to given recipient; otherwise, 0 (FALSE).

Syntax
IsBursting(recipientName)

Locale

Returns run locale.

Syntax
Locale()

ModelPath

Returns model path.

Syntax
ModelPath()

Now

Returns current system time.
**Syntax**

`Now()`

**PageCount**

Returns the current page count. If you run the report, this function works only when the report output is PDF or Excel. If you save the report output, this function works for all formats.

**Syntax**

`PageCount()`

**PageName**

Returns the current page name.

**Syntax**

`PageName()`

**PageNumber**

Returns current page number.

**Syntax**

`PageNumber()`

**ParamCount**

Returns parameter count of the variable identified by parameterName.

**Syntax**

`ParamCount(parameterName)`

**ParamDisplayValue**

Returns a string that is the parameter display value of the variable identified by parameterName.

**Syntax**

`ParamDisplayValue(parameterName)`

**ParamName**

Returns parameter name of the variable identified by parameterName.

**Syntax**

`ParamName(parameterName)`

**ParamNames**

Returns all parameter names.

**Syntax**

`ParamNames()`

**ParamValue**

Returns a string that is the parameter value of the variable identified by parameterName.

**Syntax**

`ParamValue(parameterName)`

**ReportAuthorLocale**

Returns author locale.
Syntax
ReportAuthorLocale()

**ReportCreateDate**

Returns the date when the report was created.

**Syntax**
ReportCreateDate()

**ReportDate**

Returns report execution date and time.

**Syntax**
ReportDate()

**ReportDescription**

Returns report description. This function works only when the report is run from Cognos Connection.

**Syntax**
ReportDescription()

**ReportID**

Returns the report id.

**Syntax**
ReportID()

**ReportLocale**

Returns run locale.

**Syntax**
ReportLocale()

**ReportName**

Returns report name. This function works only when the report is run from Cognos Connection.

**Syntax**
ReportName()

**ReportOption**

Returns the value of run option variable identified by `optionName`. Possible values for `optionName`: `attachmentEncoding`, `burst`, `cssURL`, `email`, `emailAsAttachment`, `emailAsURL`, `emailBody`, `emailSubject`, `emailTo`, `emailToAddress`, `history`, `metadataModel`, `outputEncapsulation`, `outputFormat`, `outputLocale`, `outputPageDefinition`, `outputPageOrientation`, `primaryWaitThreshold`, `print`, `printer`, `printerAddress`, `prompt`, `promptFormat`, `saveAs`, `saveOutput`, `secondaryWaitThreshold`, `verticalElements`, `xslURL`.

**Syntax**
ReportOption(`optionName`)

**ReportOutput**

Returns the name of the output format. Possible return values: CSV, HTML, HTMLFragment, PDF, XHTML, XML.
Appendix D: Using the Expression Editor

Syntax
ReportOutput()

ReportPath
Returns report path. This function works only when the report is run from Cognos Connection.

Syntax
ReportPath()

ReportProductLocale
Returns product locale.

Syntax
ReportProductLocale()

ReportSaveDate
Returns the date when the report was last saved.

Syntax
ReportSaveDate()

RowNumber
Returns current row.

Syntax
RowNumber()

ServerLocale
Returns the locale of the server that runs the report.

Syntax
ServerLocale()

ServerName
Returns the name of the server that runs the report.

Syntax
ServerName()

Today
Returns current system date.

Syntax
Today()

URLEncode
Returns the url encoded value of the input text.

Syntax
URLEncode(text)

Data type casting functions
Appendix D: Using the Expression Editor

**date2string**

Returns a date as string in YYYY-MM-DD format.

**Syntax**

date2string(date_exp)

**DTInterval2string**

Returns a date time interval as string in "DDDD HH:MM:SS.FFFFFFF" or "-DDDD HH:MM:SS.FFF" format.

**Syntax**

DTInterval2string(DTinterval_exp)

**DTInterval2stringAsTime**

Returns a date time interval as string. The days are converted to hours. Output format: "HHHH:MM:SS.FFFFFFF" or "HH:MM:SS.FFF".

**Syntax**

DTInterval2stringAsTime(DTinterval_exp)

**int2DTinterval**

Converts an integer to a date time interval. The second argument specifies what the integer number is representing: "ns"=nanoseconds, "s"=seconds (default), "m"=minutes, "h"=hours, "d"=days.

**Syntax**

int2DTinterval(Int64 value, String format)

**int2YMinterval**

Converts an integer to a year month interval. The second argument specifies what the integer number is representing: "y"=years, "m"=months (default).

**Syntax**

int2YMinterval(Int64 value, String format)

**string2date**

Returns a datestring as date in "YYYY-MM-DD" format.

**Syntax**

string2date(string_exp)

**string2double**

Returns a floating point number. The string argument to the function "string2double" has the following form: "[whitespace] [sign] [digits] [digits] [ {d | D |e | E }[sign]digits]"

**Syntax**

string2double(string_exp)

**string2int32**

Returns an integer. The string argument to the function "string2int32" has the following form: "[whitespace] [[+ | –]] [digits]"

**Syntax**

string2int32(string_exp)

**string2int64**

Returns a long integer. The string argument to the function "string2int64" has the following form: "[whitespace] [[+ | –]] [digits]"
**string2time**

Returns a timestring as time in "HH:MM:SS.FFFFFF" format.

**Syntax**

`string2time(string_exp)`

**string2timestamp**

Returns a timestampstring as timestamp in "YYYY-MM-DD [white space]+HH:MM:SS.FFFFFF" format.

**Syntax**

`string2timestamp(string_exp)`

**time2string**

Returns a time as string in HH:MM:SS.FF format.

**Syntax**

`time2string(time_exp)`

**timestamp2string**

Returns a timestamp as string in YYYY-MM-DD HH:MM:SS.FFFFFF format.

**Syntax**

`timestamp2string(timestamp_exp)`

**timestampTZ2string**

Returns a timestamp with time zone as string in "YYYY-MM-DD HH:MM:SS.FFFFFF +HHMM" or "YYYY-MM-DD HH:MM:SS.FF -HHMM" format.

**Syntax**

`timestampTZ2string(timestampTZ_exp)`

**timeTZ2string**

Returns a time zone as string in "HH:MM:SS.FFF +HHMM" or "HH:MM:SS.FFFFFF -HHMM" format; e.g. "-05:30" means a TimeZone of GMT minus 5 hours and 30 minutes.

**Syntax**

`timeTZ2string(timeTZ_exp)`

**YMinterval2string**

Returns a year month interval as string in "(YY MM)" or "-(YY MM)" format.

**Syntax**

`YMinterval2string(YMinterval_exp)`
Appendix D: Using the Expression Editor
Appendix E: Producing Reports in Microsoft Excel Format

The following limitations exist when producing reports in Microsoft Excel format.

Microsoft Excel Limitations

The following issues were identified in Microsoft Excel and affect producing Cognos 8 reports in Excel format.

Unable to Load Images from the Cognos 8 Content Store in a Report

If a report contains an image whose URL points to the Cognos 8 content store, Microsoft Excel generates an access violation error and shuts down.

This problem is a known issue in the Microsoft knowledge base, and Microsoft is currently investigating the problem. This problem occurs only in Excel 2000 and 2002.

A Blank Worksheet is Opened

If Microsoft Excel cannot download a worksheet within a timeout period, Excel may instead open a blank worksheet.

A Warning Message Appears When Excel Opens a Cognos 8 Report

Each time Microsoft Excel opens a Cognos 8 report, the following message appears:

Some of the files in this Web page aren’t in the expected location. Do you want to download them anyway? If you’re sure the Web page is from a trusted source, click Yes.

The Excel workbook in HTML/XML format requires the presence of the file filelist.xml. Cognos 8 does not allow the creation of local files on the client side. In addition, a local file that contains URLs introduces a security issue. Consequently, this message will appear whenever you open a Cognos 8 report in Excel.

Using Reports Saved in XLS Format

If you open a report that was saved in XLS format or run a report in XLS format, and security settings in your browser are set so that you are prompted to open or save the report, do not click Save. If you save the report, the spreadsheet content will not be saved. This is because Excel reports in Office 2000 HTML format use relative paths to the spreadsheets. The relative URL paths are no longer available when you open a saved XLS report.

Instead, click Open first and then choose to save the report.

Loading Excel Reports in Netscape 7.01 Is Not Supported

This version of Cognos 8 does not support loading Microsoft Excel reports in Netscape 7.01.

Nested Labels in Charts Are Not Supported

Currently, it is not possible to specify nested labels for the category axis via XML.
Appendix E: Producing Reports in Microsoft Excel Format

Data Series Are Truncated

Microsoft Excel may show data series or categories grouped differently when compared to a chart produced by Cognos 8.

Excel limits the maximum number of data series per chart to 255. Data series over 255 are truncated.

Charts and Custom Colors

When running a report containing a chart in Excel format, the chart requires that 16 Cognos 8 default colors be added to the Excel custom palette. 16 is the maximum number of colors that Excel accepts in its custom palette. If the report contains a report object that uses an additional custom color, Excel cannot add it to the custom palette. Excel will attempt to match the custom color to one of its available standard colors. As a result, the report object will be a few shades away from the custom color used.

Repeating Pie Charts

If you have a report that has repeating pie charts, and you define a chart title, Excel will show each pie with a title that is a concatenation of the chart title and the data series. For example, if the chart title is Quantity Sold by Order Method and Product Line and the data series is Order method, the title of each pie in Excel will be Quantity Sold by Order Method and Product Line, order method.

Discrete Axis Label Skip Control in Charts

In Cognos 8 charts, you can control the skipping of discrete axis labels. This feature is not supported in Excel charts.

Formatting Limitations

About 70% of the formatting functions available in Cognos 8 are supported in Microsoft Excel. The following table shows which formatting functions are supported in Excel and which are not.

<table>
<thead>
<tr>
<th>Cognos 8 format</th>
<th>Supported in Excel</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currency</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Currency Symbol</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Decimal Separator</td>
<td></td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Exponential Symbol</td>
<td></td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Format Width</td>
<td></td>
<td>Not required. Excel automatically adjusts the width.</td>
</tr>
<tr>
<td>Group Separator</td>
<td></td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Group Size</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>International Currency Symbol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Cognos 8 format | Supported in Excel | Notes |
--- | --- | --- |
List Separator | ✚ | Not required. Excel automatically adjusts the width. |
Maximum Fraction Digits | ✚ | |
Maximum Integer Digits | ✚ | |
Minimum Exponent Digits | ✚ | |
Minimum Fraction Digits | ✚ | |
Minimum Integer Digits | ✚ | |
Minus Sign | ✚ | |
Monetary Decimal Separator | ✚ | Excel does not allow changing the locale-dependent formatting attributes. |
Multiplier | ✚ | Not supported by Excel. |
Negative Prefix | ✚ | |
Negative Suffix | ✚ | |
Pad Character | ✚ | |
Percent Symbol | ✚ | Not supported by Excel. |
PerMill Symbol | ✚ | Not supported by Excel. |
Plus Sign | ✚ | |
Positive Prefix | ✚ | |
Positive Suffix | ✚ | |
Scale | ✚ | Excel has a different scaling formula than Cognos 8. |
Secondary Grouping Size | ✚ | |
When Negative | ✚ | |
WhenZero | ✚ | |
Use Currency Symbol | ✚ | |
## Appendix E: Producing Reports in Microsoft Excel Format

<table>
<thead>
<tr>
<th>Cognos 8 format</th>
<th>Supported in Excel</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Grouping</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Use Scientific</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Use Trailing Currency Symbol</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Use Trailing Sign</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>AM String</td>
<td>✓</td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Calendar</td>
<td>✓</td>
<td>Excel does not allow changing the calendar.</td>
</tr>
<tr>
<td>Date Separator Symbol</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Day Name</td>
<td>✓</td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Day Short Name</td>
<td>✓</td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Decimal Delimiter Symbol</td>
<td>✓</td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Era Name</td>
<td>✓</td>
<td>Not supported by Excel.</td>
</tr>
<tr>
<td>First Day Of Week</td>
<td>✓</td>
<td>Not supported by Excel.</td>
</tr>
<tr>
<td>Month Name</td>
<td>✓</td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Month Short Name</td>
<td>✓</td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>PM String</td>
<td>✓</td>
<td>Excel does not allow changing locale-dependent formatting attributes.</td>
</tr>
<tr>
<td>Symbol Display Order</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Time Separator Symbol</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Show AmPm Symbol</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Show Century</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Show Clock</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Show Days</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Show Era</td>
<td>✓</td>
<td>Not supported by Excel.</td>
</tr>
</tbody>
</table>
Appendix E: Producing Reports in Microsoft Excel Format

Overline Text Format

Microsoft Excel does not support the overline text format.

Text Strings with More Than 255 Characters

Cells in Microsoft Excel have a limit of 255 characters. If your report contains text strings that are longer than 255 characters, they will be formatted as text and appear as ######.

Reports with More Than 256 Columns

Microsoft Excel limits the size of a worksheet size to 65536 rows by 256 columns. If your report contains more than 65536 rows, it is split into multiple worksheets. The number of worksheets that your report can contain is limited by the physical memory of your computer. If your report contains more than 256 columns, the following error occurs:

Reports with more than 256 columns cannot be rendered in Excel.

Table and Column Width

Microsoft Excel does not support using percentages to determine the width of tables. If the report contains only one table, the value of the width attribute for the Table element in the report specification determines the width of the table in the Excel worksheet. If the report contains more than one table, Excel determines the width of all the tables in the worksheet. If the tables are nested, the width specified for the outer table is used and, if necessary, the width is adjusted to accommodate data in the nested tables. The columns and rows around the table are merged to preserve the appearance of the nested table. When the workbook is saved, only a single table is saved per worksheet.

Excel Formats and Secure Socket Layer (SSL)

SSL is supported for the following formats and Microsoft Excel versions.

<table>
<thead>
<tr>
<th>Format</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excel 2000</td>
<td>Microsoft Excel 2003</td>
</tr>
</tbody>
</table>

Number Format Becomes Currency Format in Japanese Excel

A report uses the Number data format and you save it as Microsoft Excel output. When you open the report in the Japanese version of Microsoft Excel, the data format is listed as Currency rather than Number. This occurs because Japanese Excel interprets the standard Number data format slightly differently than other versions of Excel.
The value appears correctly in Number format. For example, if you specified five digits as your number format, five digits still appear. In Excel, click the Custom number format to see the exact format string being used.

### Cognos 8 Limitations

The following Cognos 8 limitations exist when producing reports in Microsoft Excel format.

#### Accessing Reports on a Remote Server

To access a report in Excel format on a remote server, you must change the hostname portion of the gateway URI from localhost to either the IP address of the computer or the computer name. You do this using Cognos Configuration.

#### Drill-through Reports

Cognos 8 does not support drill-through for reports in Excel format.

#### Map Reports

Cognos 8 does not support map reports in Excel format.

#### Formats Not Supported for Reports in Excel Format

Cognos 8 does not support the following for reports in Excel formats:

- background images in table cells
- Excel-specific headers and footers
- text flow and justification
- floating text objects
- white space, normal, and wrap text formatting
- maximum characters

Some layouts do not show exactly in HTML and PDF due to Microsoft Excel limitations.

#### Hyperlink Buttons

Microsoft Excel does not support hyperlink buttons.

#### Emailing Reports in Excel Format

Cognos 8 can send Excel reports in HTML and XML format by email. However, the Excel email attachments must be saved to your computer before you can view them.

#### Charting Support in Excel and Cognos 8

The following Cognos 8 chart properties are not supported in Microsoft Excel:

- tool tips
- conditional text
- depth
- visual angle
- show values
- marker text location
- show baseline
- new note
• new marker
• truncation text and allow n-degrees rotation category labels
• border
• margin
• box type
• font and font alignment
• footer
• subtitle
• regression line
• baseline

In addition, Cognos 8 makes sure that Excel reuses the same color palette that is defined in Cognos 8. However, Excel can only use the first 16 colors from the Cognos 8 palette. If the number of categories in a chart exceeds 16, the rest of the colors are taken from the default Excel palette.

About 70% of the chart types available in Cognos 8 are matched in Microsoft Excel. The following table shows which chart types are supported in Microsoft Excel 2000 and later and which are not. Charts not supported will return a default column chart.

<table>
<thead>
<tr>
<th>Chart group</th>
<th>Chart type</th>
<th>Supported in Excel</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column</td>
<td>Column</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Column 3-D</td>
<td>✓</td>
<td>Results are better in HTML</td>
</tr>
<tr>
<td></td>
<td>Stacked</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Stacked 3-D</td>
<td>✓</td>
<td>Results are better in HTML</td>
</tr>
<tr>
<td></td>
<td>100% stacked 3-D</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>100% stacked 3-D</td>
<td>✓</td>
<td>Chart is viewed from a different angle</td>
</tr>
<tr>
<td></td>
<td>3-D axis</td>
<td>✓</td>
<td>Similar, but category data is presented in the reverse order</td>
</tr>
<tr>
<td>Bar</td>
<td>Bar</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Bar 3-D</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Stacked</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Stacked 3-D</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>100% stacked 3-D</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td>Chart group</td>
<td>Chart type</td>
<td>Supported in Excel</td>
<td>Notes</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------</td>
<td>--------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Progressive</td>
<td>Column</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Column with 3-D effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bar with 3-D effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pareto</td>
<td>Stacked column</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stacked column 3-D</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stacked bar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stacked bar 3-D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line</td>
<td>Line with markers</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Line</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Line 3-D</td>
<td>✓</td>
<td>Shows as a Line 3-D axis chart</td>
</tr>
<tr>
<td></td>
<td>Stacked line with markers</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stacked line</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Stacked line 3-D</td>
<td>✓</td>
<td>Shows as a stacked line</td>
</tr>
<tr>
<td></td>
<td>100% stacked line with markers</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>100% stacked line</td>
<td>✓</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>100% stacked line 3-D</td>
<td>✓</td>
<td>Shows as 100% stacked line</td>
</tr>
<tr>
<td>Pie</td>
<td>Pie</td>
<td>✓</td>
<td>Cognos 8 shows many types of pie charts, Microsoft Excel shows only one type</td>
</tr>
<tr>
<td></td>
<td>Pie 3-D</td>
<td>✓</td>
<td>Microsoft Excel shows the pie chart at a different angle</td>
</tr>
<tr>
<td></td>
<td>Donut</td>
<td>✓</td>
<td>Microsoft Excel may fill in the donut hole to accommodate extra measures</td>
</tr>
<tr>
<td></td>
<td>Donut 3-D</td>
<td>✓</td>
<td>Shows as a donut chart</td>
</tr>
<tr>
<td>Chart group</td>
<td>Chart type</td>
<td>Supported in Excel</td>
<td>Notes</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------</td>
<td>--------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Area</td>
<td>Area</td>
<td>✔</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Area 3-D</td>
<td>✔</td>
<td>Shows a smaller version of an Area 3-D axis chart</td>
</tr>
<tr>
<td></td>
<td>Stacked area</td>
<td>✔</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Stacked area 3-D</td>
<td>✔</td>
<td>Shows at a different angle</td>
</tr>
<tr>
<td></td>
<td>100% stacked area</td>
<td>✔</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>100% stacked area 3-D</td>
<td>✔</td>
<td>Shows at a different angle</td>
</tr>
<tr>
<td></td>
<td>3-D Axis</td>
<td>✔</td>
<td>Similar</td>
</tr>
<tr>
<td>Scatter, bubble, point</td>
<td>Scatter</td>
<td>✔</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Bubble</td>
<td>✔</td>
<td>Similar but actual details on the chart may differ slightly</td>
</tr>
<tr>
<td></td>
<td>Quadrant</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radar, polar</td>
<td>Radar with markers</td>
<td>✔</td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Radar</td>
<td>✔</td>
<td>Returns Radar with markers</td>
</tr>
<tr>
<td></td>
<td>Area radar</td>
<td>✔</td>
<td>Microsoft Excel names this chart type Filled radar</td>
</tr>
<tr>
<td></td>
<td>Stacked area radar</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bipolar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination</td>
<td>Combination</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combination 3-D</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stacked combination</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stacked combination 3-D</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-D axis</td>
<td></td>
<td>Returns Combination</td>
</tr>
<tr>
<td>Gauge</td>
<td>Dial gauge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F: Report Studio Object and Property Reference

This appendix contains definitions of the objects and properties found in Report Studio. They are available contextually, by pressing F1 when an object or property is active in the Report Studio authoring environment.

The following objects and properties are referenced:

Report Studio Objects

These objects are visible in the Report Studio work area. They can be inserted from the toolbox tab.

Report Studio Properties

These properties can be set on Report Studio objects. They are available in the lower-left pane of Report Studio.

Data Formatting Properties

These properties can be set on data values by selecting Layout Data Format from the Data menu, or by editing the Data Format property for Report Studio objects.

Report Studio Objects

The following is a list of objects available in Report Studio.

3-D Area

A chart in which members of a data series are represented by three-dimensional areas of varying size and color. The three-dimensional area chart is one of three chart types that can be included in a three-dimensional combination chart.

Properties of 3-D Area

Border Color, Borders, Chart Type, Values

3-D Bar

A chart in which members of a data series are represented by three-dimensional bars of varying length and color. The three-dimensional bar chart is one of three chart types that can be included in a three-dimensional combination chart.

Properties of 3-D Bar

Border Color, Borders, Chart Type, Values

3-D Combination Chart

A chart that includes any number and combination of three-dimensional bar charts, line charts, and area charts. This chart plots any number of data series against one common measure on the vertical numeric axis and one or two common data series on ordinal axes.
Appendix F: Report Studio Object and Property Reference

### Properties of 3-D Combination Chart

3-D Viewing Angle, Background Color, Background Image, Baselines, Border, Box Type, Class, Conditional Palette, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Margin, Master Detail Relationships, Name, Notes, Numerical Axis, Padding, Pagination, Palette, Query, Relative Alignment, Render Variable, Series Color, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Visible, X Axis, Y Axis

### 3-D Line

A chart in which members of a data series are represented by three-dimensional lines of varying colors. The three-dimensional line chart is one of three chart types that can be included in a three-dimensional combination chart.

**Properties of 3-D Line**

Border Color, Borders, Chart Type, Values

### 3-D Scatter Chart

A chart that plots three measures against one or more data series on a three-dimensional X-Y-Z graph.

**Properties of 3-D Scatter Chart**

3-D Viewing Angle, Background Color, Background Image, Baselines, Border, Border Color, Borders, Box Type, Class, Conditional Palette, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Margin, Master Detail Relationships, Name, Notes, Padding, Pagination, Palette, Point Shape, Point Size (pt), Query, Relative Alignment, Render Variable, Show Feelers, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Values, Visible

### Angular Axis

The angular numeric axis for a polar chart, including labels, titles, range, and scale.

**Properties of Angular Axis**

Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

### Angular Measure

The measure that determines the angular position of each data marker on a polar chart.

**Properties of Angular Measure**

Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

### Area

The data marker used to represent data series in an area chart.

**Properties of Area**

Axis Assignment, Border Color, Borders, Chart Type, Grouping Type, Value Location, Values, Value Type

### As of Time Expression

An expression that produces a Date-Time value. This expression can be used to show report results for a specific time period that is defined by an expression that you create.
Properties of As of Time Expression

Report Expression

Axis Title

The title for an axis of the chart.

Properties of Axis Title

Box Type, Class, Default Title, Font, Foreground Color, Master Detail Relationships, Properties, Query, Style Variable, Visible

Bar

A chart in which members of a data series are represented by bars of varying length and color.

Properties of Bar

Axis Assignment, Border Color, Borders, Chart Type, Connecting Lines, Grouping Type, Value Location, Values, Value Type

Baseline

A baseline to be rendered on a chart.

Properties of Baseline

Aggregate Function, Axis Assignment, Bar, Line, or Area Index, Box Type, Data Item Value, Expression, Label, Legend Label, Limit Type, Line Styles, Master Detail Relationships, Member Offset (%), Name, Numeric Value, Percentile, Percent of Axis, Properties, Query, Report Expression, Rollup Aggregate Function, Source Type, Standard Deviations

Baseline

A baseline for a polar chart, scatter chart, or bubble chart.

Properties of Baseline

Aggregate Function, Axis Assignment, Box Type, Data Item Value, Expression, Label, Label, Legend Label, Limit Type, Line Styles, Master Detail Relationships, Name, Numeric Value, Percentile, Percent of Axis, Properties, Query, Report Expression, Rollup Aggregate Function, Source Type, Standard Deviations

Baseline

A baseline for a three-dimensional combination chart.

Properties of Baseline

Aggregate Function, Bar, Line, or Area Index, Box Type, Data Item Value, Expression, Label, Limit Type, Line Styles, Master Detail Relationships, Name, Numeric Value, Percentile, Percent of Axis, Properties, Query, Report Expression, Rollup Aggregate Function, Source Type, Standard Deviations

Baseline

A baseline for a three-dimensional scatter chart.
Properties of Baseline
Aggregate Function, Box Type, Data Item Value, Expression, Label, Limit Type, Line Styles, Master Detail Relationships, Name, Numeric Value, Percentile, Percent of Axis, Properties, Query, Report Expression, Rollup Aggregate Function, Source Type, Standard Deviations

Block
A container into which you can insert other objects.

Properties of Block
Background Color, Background Image, Border, Box Type, Class, Floating, Font, Foreground Color, Horizontal Alignment, Margin, Name, Padding, Render Variable, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Visible, White Space

Bookmark
A link to another area within the same report. The link can be defined as a static value, a query item, or as the result of a report expression.

Properties of Bookmark
Data Item Label, Data Item Value, Label, Report Expression, Source Type

Bubble Chart
A point chart that plots one or more data series against three measures: a Y-value, an X-value, and a bubble whose relative size represents the third measure. Multiple points are plotted for each category.
To help distinguish values, set the Tool Tips property of this object to Yes.

Properties of Bubble Chart
Background Color, Background Image, Baselines, Border, Border Color, Borders, Box Type, Class, Conditional Palette, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Legend, Margin, Markers, Marker Text Location, Master Detail Relationships, Name, Notes, Padding, Pagination, Palette, Point Shape, Point Size (pt), Query, Regression Line, Relative Alignment, Render Variable, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Value Location, Values, Visible

Bubble Measure
The measure that determines the size of each bubble on a bubble chart.

Properties of Bubble Measure
Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

Calculated Member
An item, within a dimension, that represents an occurrence of schema data defined as a calculation of two or more members.

Properties of Calculated Member
Caption, Data Item, Name

Caption
The caption on a Field Set object.
**Appendix F: Report Studio Object and Property Reference**

**Properties of Caption**

Background Color, Background Image, Border, Class, Font, Foreground Color, Margin, Padding, Style Variable

**Chart Body**

Defines the body style of the chart itself. The style of the body can be set independently of the chart itself.

**Properties of Chart Body**

Background Color, Background Image, Fill Effects, Font, Foreground Color, Horizontal Alignment, Style Variable

**Chart Footer**

A footer for the chart.

**Properties of Chart Footer**

Box Type, Class, Font, Foreground Color, Horizontal Alignment, Master Detail Relationships, Properties, Query, Style Variable, Visible

**Chart Node Member**

A data item, and its accompanying text, to render on the chart.

**Properties of Chart Node Member**

Aggregate Function, Custom Label, Data Format, Data Item Label, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Data Item Value, Data Item Value, Data Item Value, Data Item Value, Expression, HTML, HTML Source Variable, Label, Label, Name, Properties, Report Expression, Report Expression, Report Expression, Rollup Aggregate Function, Solve Order, Sorting, Source Type, Source Type, Source Type, Source Type, Text, Text Source Variable, URL, URL Source Variable

**Chart Subtitle**

The subtitle for a chart.

**Properties of Chart Subtitle**

Box Type, Class, Font, Foreground Color, Horizontal Alignment, Master Detail Relationships, Properties, Query, Style Variable, Visible

**Chart Text Item**

The data source and format for a text item, such as a legend item, legend title, axis label, or axis title.

**Properties of Chart Text Item**

Aggregate Function, Data Format, Data Item Label, Data Item Label, Data Item Value, Expression, Label, Name, Report Expression, Rollup Aggregate Function, Source Type, Style Variable, Text, Text Source Variable

**Chart Title**

The title text that appears at the top of the chart.
**Properties of Chart Title**

Box Type, Class, Font, Foreground Color, Horizontal Alignment, Master Detail Relationships, Properties, Query, Style Variable, Visible

**Class**

The HTML class name for a layout object. Use this attribute to indicate the type of styling to apply to the object when the report is rendered.

**Properties of Class**

Background Color, Background Image, Border, Box Type, Description, Floating, Font, Foreground Color, Horizontal Alignment, Label, Label, Margin, Padding, Relative Alignment, Selector, Selector, Size & Overflow, Spacing & Breaking, Table Properties, Text Flow & Justification, Vertical Alignment, Visible, White Space

**Combination Chart**

A chart that uses combinations of column charts, area charts, and line charts as data markers to plot multiple data series.

**Properties of Combination Chart**

Background Color, Background Image, Baselines, Border, Box Type, Chart Orientation, Class, Conditional Palette, Depth, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Legend, Margin, Markers, Marker Text Location, Master Detail Relationships, Name, Notes, Ordinal Axis, Padding, Pagination, Palette, Query, Relative Alignment, Render Variable, Rotate Labels, Series Color, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Value Location, Visible, Visual Angle, Y1 Axis, Y2 Axis, Y2 Axis Position

**Component Override**

Overides a child object of the Layout Component Reference object.

**Properties of Component Override**

Component Reference

**Conditional Block**

A block that can be used for conditional display.

**Properties of Conditional Block**

Background Color, Background Image, Block Variable, Border, Box Type, Class, Current Block, Floating, Font, Foreground Color, Horizontal Alignment, Margin, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Visible, White Space

**Conditional Block**

Contains the default set of layout objects to render based on a report variable.

**Properties of Conditional Block**

Background Color, Background Image, Block Variable, Border, Box Type, Class, Current Block, Floating, Font, Foreground Color, Horizontal Alignment, Margin, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Visible, White Space

**Crosstab**

A layout object used to render the results of a query that aggregates data, and then arranges it in a two-dimensional grid.
Properties of Crosstab

Background Color, Background Image, Border, Box Type, Class, Default Measure, Default Measure Solve Order, Fact Cells Precedence, Floating, Font, Foreground Color, Has Fact Cells, Horizontal Alignment, Margin, Master Detail Relationships, Name, Pagination, Query, Relative Alignment, Render Variable, Rows Per Page, Size & Overflow, Style Variable, Table Properties, Text Flow & Justification, Visible

Crosstab Columns

Overrides the style for Crosstab Column Member objects that is defined in the GlobalReportStyles.css file.

Properties of Crosstab Columns

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

Crosstab Columns

A list of columns in a crosstab.

Properties of Crosstab Columns

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

Crosstab Corner

The top-left corner of a crosstab, on top of the row labels and to the left of the column labels. It is generally used to represent crosstab members.

Properties of Crosstab Corner

Aggregate Function, Background Color, Background Image, Border, Box Type, Class, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Data Item Value, Expression, Font, Foreground Color, Horizontal Alignment, HTML, HTML Source Variable, Label, Label, Name, Padding, Report Expression, Report Expression, Report Expression, Report Expression, Rollup Aggregate Function, Size & Overflow, Source Type, Source Type, Source Type, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, URL, URL Source Variable, Vertical Alignment, White Space

Crosstab Fact Cells

The contents of the fact cells of the crosstab. There is only one fact cell definition for the crosstab, regardless of the number of measures.

Properties of Crosstab Fact Cells

Aggregate Function, Background Color, Background Image, Border, Box Type, Class, Data Format, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Data Item Value, Drill Throughs, Expression, Font, Foreground Color, Horizontal Alignment, HTML, HTML Source Variable, Label, Label, Name, Padding, Report Expression, Report Expression, Report Expression, Report Expression, Rollup Aggregate Function, Size & Overflow, Source Type, Source Type, Source Type, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, URL, URL Source Variable, Vertical Alignment, White Space
Appendix F: Report Studio Object and Property Reference

**Crosstab Intersection**

An intersection in a crosstab. The cell contents of a specific intersection can be overridden and the style defined.

**Properties of Crosstab Intersection**

- Aggregate Function
- Background Color
- Background Image
- Border
- Box Type
- Class
- Column Intersection
- Data Format
- Data Item Label
- Data Item Label
- Data Item Label
- Data Item Label
- Data Item Value
- Data Item Value
- Data Item Value
- Data Item Value
- Data Item Value
- Data Item Value
- Define Contents
- Drill Throughs
- Expression
- Font
- Foreground Color
- Horizontal Alignment
- HTML
- HTML Source Variable
- Label
- Label
- Name
- Padding
- Report Expression
- Report Expression
- Report Expression
- Report Expression
- Rollup Aggregate Function
- Row Intersection
- Size & Overflow
- Source Type
- Source Type
- Source Type
- Source Type
- Spacing & Breaking
- Style Variable
- Text
- Text Flow & Justification
- Text Source Variable
- URL
- URL Source Variable
- Vertical Alignment
- White Space

**Crosstab Member Fact Cells**

The contents of the fact cells of a crosstab node member.

**Properties of Crosstab Member Fact Cells**

- Aggregate Function
- Background Color
- Background Image
- Border
- Box Type
- Class
- Column Intersection
- Data Format
- Data Item Label
- Data Item Label
- Data Item Label
- Data Item Label
- Data Item Value
- Data Item Value
- Data Item Value
- Data Item Value
- Define Contents
- Drill Throughs
- Expression
- Font
- Foreground Color
- Horizontal Alignment
- HTML
- HTML Source Variable
- Label
- Label
- Name
- Padding
- Report Expression
- Report Expression
- Report Expression
- Report Expression
- Rollup Aggregate Function
- Row Intersection
- Size & Overflow
- Source Type
- Source Type
- Source Type
- Source Type
- Spacing & Breaking
- Style Variable
- Text
- Text Flow & Justification
- Text Source Variable
- URL
- URL Source Variable
- Vertical Alignment
- White Space

**Crosstab Node Member**

A member in the crosstab node.

**Properties of Crosstab Node Member**

- Aggregate Function
- Background Color
- Background Image
- Border
- Box Type
- Class
- Data Format
- Data Item
- Data Item Label
- Data Item Label
- Data Item Label
- Data Item Label
- Data Item Value
- Data Item Value
- Data Item Value
- Data Item Value
- Drill Throughs
- Expression
- Font
- Foreground Color
- Horizontal Alignment
- HTML
- HTML Source Variable
- Indentation Length
- Indentation Start Level
- Intersection Name
- Label
- Label
- Name
- Padding
- Pagination
- Properties
- Report Expression
- Report Expression
- Report Expression
- Rollup Aggregate Function
- Size & Overflow
- Solve Order
- Sorting
- Source Type
- Source Type
- Source Type
- Source Type
- Spacing & Breaking
- Style Variable
- Text
- Text Flow & Justification
- Text Source Variable
- URL
- URL Source Variable
- Vertical Alignment
- White Space

**Crosstab Rows**

Overrides the style for Crosstab Row Member objects that is defined in the GlobalReportStyles.css file.

**Properties of Crosstab Rows**

- Background Color
- Background Image
- Border
- Box Type
- Data Format
- Font
- Foreground Color
- Horizontal Alignment
- Padding
- Size & Overflow
- Spacing & Breaking
- Style Variable
- Text Flow & Justification
- Vertical Alignment
- White Space

**Crosstab Rows**

A list of rows in a crosstab.
Properties of Crosstab Rows
Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

Crosstab Space
Inserts an empty cell on a crosstab edge. Allows for the insertion of non-data cells on an edge.

Properties of Crosstab Space
Background Color, Background Image, Border, Box Type, Class, Data Format, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Data Item Value, Data Item Value, Drill Throughs, Font, Foreground Color, Horizontal Alignment, HTML, HTML Source Variable, Intersection Name, Label, Padding, Pagination, Report Expression, Report Expression, Report Expression, Report Expression, Size & Overflow, Source Type, Source Type, Source Type, Source Type, Source Type, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, URL, URL Source Variable, Vertical Alignment, White Space

Cumulation Line
A line that shows the cumulative effect of multiple series members on a measure in a pareto chart.

Properties of Cumulation Line
Cumulation Axis, Cumulation Label, Line Styles, Point Shape, Point Size (pt), Properties, Value Location, Values

Cumulation Line Axis
The axis for the cumulation line in a pareto chart.

Properties of Cumulation Line Axis
Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

Cumulation Line Label
A label that is rendered with the cumulation line in a pareto chart.

Properties of Cumulation Line Label
Aggregate Function, Data Item Label, Data Item Value, Expression, Label, Name, Report Expression, Rollup Aggregate Function, Source Type, Text, Text Source Variable

Data Item
A set of data values or members.

Properties of Data Item
Aggregate Function, Calculation Intersection, Detail, Expression, Label, Name, Pre-Sort, Rollup Aggregate Function

Date & Time Prompt
A prompt control with which you can select a date and time value.
Appendix F: Report Studio Object and Property Reference

**Properties of Date & Time Prompt**
*Allow Is Missing, Box Type, Calendar Type, Clock Mode, Default Selections, Display Milliseconds, Display Seconds, First Date, Floating, Hide Adornments, Last Date, Multi-Select, Name, Parameter, Range, Render Variable, Required, Select UI, Style Variable, Visible*

**Date Prompt**
A prompt control with which you can to select a date value.

**Properties of Date Prompt**
*Allow Is Missing, Box Type, Calendar Type, Default Selections, First Date, Floating, Hide Adornments, Last Date, Multi-Select, Name, Parameter, Range, Relative Alignment, Render Variable, Required, Select UI, Style Variable, Visible*

**Default Measure**
A default measure for the chart. If the chart measure cannot be determined by the data series rendered on the chart edges, the default measure is used.

**Properties of Default Measure**
*Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable*

**Detail Filter**
A set of conditions in a query that narrow the scope of the data returned. A detail filter is applied before aggregation is complete.

**Properties of Detail Filter**
*Application, Expression, Usage*

**Dimension**
A grouping of descriptive information about an aspect of a business. Dimensions contain levels, whose order defines the hierarchy of organizational structures and data. Dimensions and levels are values by which measures can be viewed, filtered, or aggregated.

**Properties of Dimension**
*Name*

**Display Layer**
A map layer that is there for appearance only. Display layers do not correspond to data series or measures.

**Properties of Display Layer**
*Border Color, Borders, Fill Effects, Labels, Style Variable*

**Fact**
The central values that are aggregated and analyzed. Also known as measures, they are special business measurement values, such as sales or inventory levels.

**Properties of Fact**
*Data Item, Name*
Field Set

A container with a caption, into which you can insert other objects. It is similar to a block object, except that it also has a caption.

Properties of Field Set
Background Color, Background Image, Border, Box Type, Class, Floating, Font, Foreground Color, Horizontal Alignment, Margin, Name, Relative Alignment, Render Variable, Show Caption, Size & Overflow, Style Variable, Visible

Gauge Chart

A chart that plots a data series against a measure using a dial or gauge for the measure, and needles or indicators for the series members.

Properties of Gauge Chart
Axis Title, Background Color, Background Image, Border, Border Color, Borders, Box Type, Class, Conditional Palette, Dial Outline Color, Drill Throughs, Face Color, Fill Effects, Floating, Font, Footer, Foreground Color, Gauge Labels, Gauge Palette, Legend, Margin, Master Detail Relationships, Name, Notes, Numerical Axis, Padding, Pagination, Palette, Query, Relative Alignment, Render Variable, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Visible

Gauge Labels

A label for each gauge in a multiple gauge chart.

Properties of Gauge Labels
Class, Drill Throughs, Font, Foreground Color, Horizontal Alignment, Maximum Truncation Characters, Style Variable, Truncation, Truncation Text, Visible

Gauge Numerical Axis

The numeric axis for the gauge chart, including labels, titles, range, and scale.

Properties of Gauge Numerical Axis
Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

Generated Prompt

A control that acts as a placeholder. The report server will replace this control with an appropriate generated prompt control, as if it was on a generated prompt page.

Properties of Generated Prompt
Hide Adornments, Name, Parameter, Render Variable, Required

HTML Item

A container into which you can add HTML, such as a link to a multimedia file. HTML items will only appear when you run the report in HTML format.

Properties of HTML Item
Aggregate Function, Data Item Label, Data Item Value, Description, Expression, HTML, HTML Source Variable, Label, Name, Name, Render Variable, Report Expression, Rollup Aggregate Function, Source Type
Hyperlink

A hyperlink that can be defined as a static value, a query item, or as the result of a report expression. If a report expression is used, then the other values are ignored.

Properties of Hyperlink
Background Color, Background Image, Border, Box Type, Class, Data Item Label, Data Item Value, Data Item Value, Floating, Font, Foreground Color, Margin, Name, Padding, Relative Alignment, Render Variable, Report Expression, Report Expression, Size & Overflow, Source Type, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, URL, URL Source Variable, Visible

Hyperlink Button

A hyperlink that is formatted as a button. The hyperlink can be defined as a static value, a query item, or as the result of a report expression. If a report expression is used, then the other values are ignored.

Properties of Hyperlink Button
Background Color, Background Image, Border, Class, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Floating, Foreground Color, Margin, Name, Padding, Relative Alignment, Render Variable, Report Expression, Report Expression, Size & Overflow, Source Type, Source Type, Style Variable, Text, Text Source Variable, URL, URL Source Variable

Image

A link to an image file. The link can be a static value, or it can come from a report expression or query item. Use the URL source properties of the image object to define the link.

Properties of Image
Aggregate Function, Background Color, Background Image, Border, Box Type, Class, Data Item Label, Data Item Label, Data Item Value, Drill Throughs, Expression, Floating, Label, Margin, Name, Name, Relative Alignment, Render Variable, Report Expression, Rollup Aggregate Function, Size & Overflow, Source Type, Style Variable, Text, Text Source Variable, URL, URL Source Variable, Visible

Interval Prompt

An advanced prompt control that allows you to enter time duration values.

Properties of Interval Prompt
Allow Is Missing, Box Type, Default Selections, Display Milliseconds, Display Seconds, Floating, Hide Adornments, Multi-Select, Name, Parameter, Range, Render Variable, Required, Style Variable, Visible

Join

A relationship between a field in one table or query and a field of the same data type in another table or query.

Properties of Join
Join Relationships

Key

An object that uniquely identifies members of a level.
If the unique identifier is a primary or alternate key, you need only one key object. If the unique identifier is a composite key, you need one key object for every data item that participates in making the members of a level unique.

**Properties of Key**
- Data Item, Name

**Layout Component Reference**
A reference to another layout object. Before you can reference an object, its ID property must be set.

**Properties of Layout Component Reference**
- Component Reference, Embed, Overrides

**Legend**
A key to the patterns or colors assigned to the data series in a chart.

**Properties of Legend**
- Absolute Position, Auto Truncation, Background Color, Background Image, Border Color, Borders, Bottom Position (px), Box Type, Class, Drill Throughs, Fill Effects, Font, Font Auto-Sizing, Foreground Color, Horizontal Alignment, Left Position (px), Legend Title, Maximum Characters, Position, Right Position (px), Separator, Show Legend Values, Style Variable, Top Position (px), Truncation Text, Visible

**Legend Title**
The title for the legend, including the title text and text style. If this object is empty, a default title is rendered, if available.

**Properties of Legend Title**
- Box Type, Class, Default Title, Font, Foreground Color, Horizontal Alignment, Master Detail Relationships, Properties, Query, Style Variable, Visible

**Level**
A set of members with a predefined set of similar characteristics. For example, the members Year 1999 and Year 2000 in the Time dimension form a year level, while the corresponding quarters form a quarter level.

**Properties of Level**
- Caption, Name, Sorting

**Level Hierarchy**
Specifies how the levels in a dimension are logically ordered.

**Properties of Level Hierarchy**
- Name

**Line**
The data marker used to represent a data series in a line chart.
Properties of Line

Axis Assignment, Border Color, Borders, Chart Type, Grouping Type, Line, Line Style, Line Weight (pt), Point Shape, Point Size (pt), Value Location, Values, Value Type

List

A layout object that is used to present query results in a list fashion.

Properties of List

Background Color, Background Image, Border, Box Type, Class, Column Titles, Contents Height, Floating, Font, Foreground Color, Grouping & Sorting, Horizontal Alignment, Margin, Master Detail Relationships, Name, Pagination, Properties, Query, Relative Alignment, Render Variable, Rows Per Page, Size & Overflow, Style Variable, Table Properties, Text Flow & Justification, Visible

List Cell

A cell in a row, you can use for a list header or footer.

Properties of List Cell

Aggregate Function, Background Color, Background Image, Border, Box Type, Class, Data Format, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Data Item Value, Data Item Value, Expression, Font, Foreground Color, Horizontal Alignment, HTML, HTML Source Variable, Label, Label, Name, Padding, Report Expression, Report Expression, Report Expression, Report Expression, Rollup Aggregate Function, Size & Overflow, Source Type, Source Type, Source Type, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, URL, URL Source Variable, Vertical Alignment, White Space

List Column

A column in a list. Generally, the column will contain a query item, but it may also contain any number of layout objects. For example, the To column in a statement list may present the address in a table format. If the column only contains a query items, then the column will automatically span the group if the query item is grouped.

Properties of List Column

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, HTML, HTML Source Variable, Label, Label, Name, Padding, Render Variable, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

List Column Body

The contents of a column in a list report.

Properties of List Column Body

Aggregate Function, Background Color, Background Image, Border, Box Type, Class, Data Format, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Data Item Value, Data Item Value, Drill Throughs, Expression, Font, Foreground Color, Group Span, Horizontal Alignment, HTML, HTML Source Variable, Label, Label, Name, Padding, Report Expression, Report Expression, Report Expression, Report Expression, Report Expression, Rollup Aggregate Function, Size & Overflow, Source Type, Source Type, Source Type, Source Type, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, URL, URL Source Variable, Vertical Alignment, White Space

List Columns

A set of columns in a list.
Properties of List Columns

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

List Columns

Overides the style for List Column objects that is defined in the GlobalReportStyles.css file.

Properties of List Columns

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

List Columns Body Style

Overides the style for List Column Body objects that is defined in the GlobalReportStyles.css file.

Properties of List Columns Body Style

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

List Columns Title Style

Overides the style for List Column Title objects that is defined in the GlobalReportStyles.css file.

Properties of List Columns Title Style

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

List Column Title

The title of a list column.

Properties of List Column Title

Aggregate Function, Background Color, Background Image, Border, Box Type, Class, Data Format, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Label, Data Item Value, Data Item Value, Data Item Value, Drill Throughs, Expression, Font, Foreground Color, Horizontal Alignment, HTML, HTML Source Variable, Label, Label, Name, Padding, Report Expression, Report Expression, Report Expression, Report Expression, Rollup Aggregate Function, Size & Overflow, Source Type, Source Type, Source Type, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, URL, URL Source Variable, Vertical Alignment, White Space

List Footer

The footer that appears at the end of a list on each page on which the list is rendered. It is useful for presenting page totals.

Properties of List Footer

Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Properties, Push To Bottom, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space
Appendix F: Report Studio Object and Property Reference

List Header
The header that appears at the start of a list on each page that the list is rendered. It is useful for presenting carry forward totals.

Properties of List Header
Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Pagination, Properties, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

List Page Footer
The footer that appears at the bottom of every page of a list report. This object is rendered after the list details and other list footers.

Properties of List Page Footer
Push To Bottom

List Page Header
The header in the list that will appear on every page rendered. It occurs after the column titles and before the overall group header of the list.

Properties of List Page Header
Display After Overall Header

List Row
A row in a list.

Properties of List Row
Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

List Row Cells Style
Overrides the style for Row Cells Style objects that is defined in the GlobalReportStyles.css file.

Properties of List Row Cells Style
Background Color, Background Image, Border, Box Type, Data Format, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

Map
A chart that uses a map to show data.

Properties of Map
Axis Title, Background Color, Background Image, Border, Box Type, Class, Data Language, Dictionary, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Ignore Data with No Features, Legend, Map & Layers, Margin, Master Detail Relationships, Name, No Data Features Size (pt), Notes, Padding, Pagination, Query, Relative Alignment, Render Variable, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Visible
**Map Location**

 Associates a data series with regions on the region layer of the map.

**Properties of Map Location**

 Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Style Variable

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**Map Location**

 Associates a data series with points on the point layer of the map.

**Properties of Map Location**

 Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Style Variable

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**Map Refinement Location**

 Qualifies the data series members that are associated with regions on the map.

**Properties of Map Refinement Location**

 Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Style Variable

---

**Map Refinement Location**

 Qualifies the data series members that are associated with points on the map.

**Properties of Map Refinement Location**

 Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Style Variable

---

**Marker**

 An additional marker that can be placed at a static point on a chart.

**Properties of Marker**

 Aggregate Function, Axis Assignment, Bar, Line, or Area Index, Box Type, Data Item Value, Expression, Label, Label, Master Detail Relationships, Name, Numeric Value, Percentile, Percent of Axis, Point Color, Point Shape, Point Size (pt), Properties, Query, Report Expression, Report Expression, Rollup Aggregate Function, Source Type, Standard Deviations

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**Marker**

 A marker on a point chart. Point charts include scatter charts, polar charts, radar charts, and bubble charts.

**Properties of Marker**

 Box Type, Data Item Value, Data Item Value, Label, Master Detail Relationships, Numeric Value, Percentile, Percent of Axis, Point Color, Point Shape, Point Size (pt), Properties, Query, Report Expression, Source Type, Source Type, Standard Deviations

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**MDX**

 A multidimensional expression (MDX) query against an OLAP data source.
Appendix F: Report Studio Object and Property Reference

**Properties of MDX**
Catalog, Data Source, MDX, Name

**Member Hierarchy**
The organization of a dimension's members into a logical tree structure, with each member having one or more "parent" members and an arbitrary number of "child" members.

**Properties of Member Hierarchy**
Name

**Member Property**
A property that is associated with members of a level. Attributes can be used to refine a search within level members, or to provide additional information about members.

**Properties of Member Property**
Data Item, Name

**Member Set**
A named member set from a data item object specified in the query.

**Properties of Member Set**
Data Item, Name

**Metrics Range Chart**
A chart that superimposes target value markers, target range markers, and tolerance range markers over any number or combination of bar, line, and area charts.

**Properties of Metrics Range Chart**
Background Color, Background Image, Baselines, Border, Box Type, Class, Conditional Palette, Depth, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Legend, Margin, Marker Color, Marker Label, Markers, Marker Text Location, Master Detail Relationships, Name, Notes, Ordinal Axis, Padding, Pagination, Palette, Performance Pattern, Query, Range Label, Relative Alignment, Render Variable, Series Color, Size & Overflow, Style Variable, Subtitle, Target Color, Target Marker, Target Marker Border Color, Target Marker Position, Target Range (%), Title, Tolerance Color, Tolerance Label, Tooltips, Upper Range Skew (%), Value Location, Visible, Visual Angle, Y1 Axis

**Metric Studio Diagram**
A Metric Studio history chart rendered as an image.

**Properties of Metric Studio Diagram**
Description, Diagram Identifier

**Note**
A note on a chart. The source of the note text can be static text, a query item, or a report expression.

**Properties of Note**
Bottom Position (px), Box Type, Height (px), Left Position (px), Note Border, Style Variable, Width (px)
Note Content

The content and style of a note.

Properties of Note Content

Background Color, Box Type, Class, Font, Foreground Color, Horizontal Alignment, Master Detail Relationships, Properties, Query, Style Variable, Visible

Numerical Axis

The numeric axis for a progressive chart, including labels, titles, range, scale, and gridlines.

Properties of Numerical Axis

Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

Numerical Axis

The numeric axis for a pareto chart, including labels, titles, and gridlines.

Properties of Numerical Axis

Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

Ordinal Axis

The axis line for an ordinal, or non-numeric, axis.

Properties of Ordinal Axis

Allow 45° Rotation, Allow 90° Rotation, Allow Skip, Allow Stagger, Axis Labels, Axis Line, Axis Title, Class, Display Frequency, Drill Throughs, First Label Index, Font, Foreground Color, Gridlines, Label Control, Maximum Truncation Characters, Minor Gridlines, Style Variable, Truncation, Truncation Text, Visible

Page

A page in a layout.

Properties of Page

Background Color, Background Image, Border, Class, Font, Foreground Color, Horizontal Alignment, Margin, Name, Padding, Pagination, Properties, Query, Render Variable, Size & Overflow, Style Variable, Text Flow & Justification

Page Body

The main body of a page.

Properties of Page Body

Background Color, Background Image, Border, Box Type, Class, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

Page Footer

The footer of a page.
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**Properties of Page Footer**
Background Color, Background Image, Border, Box Type, Class, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

**Page Header**
The header of a page.

**Properties of Page Header**
Background Color, Background Image, Border, Box Type, Class, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

**Page Set**
The set of pages to render according to a grouping structure.

**Properties of Page Set**
Grouping & Sorting, Master Detail Relationships, Name, Pagination, Properties, Query

**Pareto Chart**
A chart in which data series appear as colored sections stacked in columns or bars. The maximum of each column or bar represents the series total as a percentage of the overall total of all data series in the chart.

Negative values are not supported in pareto charts.

**Properties of Pareto Chart**
Background Color, Background Image, Baselines, Border, Border Color, Borders, Box Type, Chart Orientation, Class, Conditional Palette, Connecting Lines, Cumulative Line, Depth, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Legend, Margin, Markers, Marker Text Location, Master Detail Relationships, Name, Notes, Padding, Pagination, Palette, Query, Relative Alignment, Render Variable, Rotate Labels, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Value Location, Values, Visible, Visual Angle

**Pie Chart**
A chart that uses sections of a circle as data markers to plot one or more data series. The size of each section is proportional to the value of each data series for a given category value. Each pie corresponds to a category value.

**Properties of Pie Chart**
Avoid Label Collision, Axis Title, Background Color, Background Image, Border, Border Color, Borders, Box Type, Class, Conditional Palette, Depth, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Hole Size (%), Labels, Legend, Margin, Master Detail Relationships, Name, Notes, Padding, Pagination, Palette, Pie Labels, Query, Relative Alignment, Render Variable, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Value Representation, Values, Visible

**Pie Labels**
The labels that will be drawn if multiple pie charts are rendered. If this object does not exist, no labels will be rendered.
Properties of Pie Labels
Class, Drill Throughs, Font, Foreground Color, Horizontal Alignment, Maximum Truncation Characters, Style Variable, Truncation, Truncation Text, Visible

Point Layer
A map layer that includes points, such as cities. The color and size of each point is determined by their respective measure.

Properties of Point Layer
Border Color, Borders, Color Legend Title, Conditional Palette, Fill Effects, Labels, Map Drills, Palette, Show Data Range in Legend, Show Features with No Data, Size Legend Title, Style Variable, Values

Point Measure
The measure that determines the colors of points on a map chart.

Properties of Point Measure
Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

Point Size Measure
The measure that determines the size of the points on a map chart.

Properties of Point Size Measure
Aggregate Function, Custom Label, Data Format, Expression, Label, Maximum Size (pt), Minimum Size (pt), Name, Rollup Aggregate Function, Solve Order, Style Variable

Polar Chart
A point chart that plots one or more data series against two measures. The radius of a data series is determined by one measure and the arc is determined by the other measure. Multiple points are plotted for each category. They can be distinguished with the help of tool tips if the Tool Tip property is set to Yes.

Properties of Polar Chart
Angular Axis, Background Color, Background Image, Baselines, Border, Border Color, Borders, Box Type, Class, Conditional Palette, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Legend, Margin, Markers, Marker Text Location, Master Detail Relationships, Name, Notes, Padding, Pagination, Palette, Point Shape, Point Size (pt), Query, Radial Axis, Relative Alignment, Render Variable, Size & Overflow, Spider Effects, Style Variable, Subtitle, Title, Tooltips, Value Location, Values, Visible

Progressive Chart
A chart that uses columns as data markers to plot one category across a single measure. The top of the first column represents the starting value for the second column. This chart emphasizes the positive or negative contribution of each value to the total.
Properties of Progressive Chart

Background Color, Background Image, Baselines, Border, Border Color, Borders, Box Type, Chart Orientation, Class, Conditional Palette, Connecting Lines, Depth, Drill Throughs, Fill Effects, First Column Color, Floating, Font, Footer, Foreground Color, Margin, Markers, Marker Text Location, Master Detail Relationships, Name, Negative Column Color, Notes, Ordinal Axis, Padding, Pagination, Palette, Positive Column Color, Progressive Axis, Query, Relative Alignment, Render Variable, Rotate Labels, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Total Column, Value Location, Values, Visible, Visual Angle

Prompt Button

A predefined button used in prompt pages. Its usage changes according to its Type property, which can be set to Cancel, Back, Next, Finish, or Reprompt.

Properties of Prompt Button

Background Color, Background Image, Border, Class, Floating, Font, Foreground Color, Margin, Name, Padding, Relative Alignment, Size & Overflow, Style Variable, Type

Query

The data that is to be retrieved from the database. The query consists of a source, a selection, detailed and summary filters, and dimension information.

Properties of Query

Auto Group & Summarize, Auto-Sort, Avoid Division by Zero, Cross Product Allowed, Define Member Sets, Execution Optimization, Generated SQL/MDX, Maximum Execution Time, Maximum Rows Retrieved, Maximum Tables, Maximum Text Blob Characters, Name, Outer Join Allowed, Override Dimension Info, Processing, Rollup Processing, Suppress, Use Local Cache, Use SQL With Clause

Query Operation

Union, Intersect, Except (minus) operations on one or more queries that result in a projection list upon which other queries can be based.

Properties of Query Operation

Duplicates, Name, Projection List, Set Operation

Query Reference

A reference to another query defined in the same query set.

Properties of Query Reference

Cardinality

Radar Chart

A chart that integrates multiple axes into a single radial figure as lines or stacked areas.

Properties of Radar Chart

Background Color, Background Image, Baselines, Border, Border Color, Borders, Box Type, Class, Conditional Palette, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Legend, Margin, Markers, Marker Text Location, Master Detail Relationships, Name, Notes, Ordinal Axis, Padding, Pagination, Palette, Point Shape, Point Size (pt), Query, Radar Type, Radial Axis, Relative Alignment, Render Variable, Size & Overflow, Spider Effects, Style Variable, Subtitle, Title, Tooltips, Value Location, Values, Visible
Radial Axis

The radial numeric axis for a polar chart or radar chart, including labels, titles, range, and scale.

Properties of Radial Axis
Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

Radial Measure

The measure that determines the distance between the center of the chart and each data marker.

Properties of Radial Measure
Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

Region Layer

A map layer that includes regions, such as provinces.

Properties of Region Layer
Border Color, Borders, Color Legend Title, Conditional Palette, Fill Effects, Labels, Map Drills, Palette, Show Data Range in Legend, Show Features with No Data, Style Variable, Values

Region Measure

The measure that determines the colors of regions on a map chart.

Properties of Region Measure
Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

Regression Line

A regression line for a bubble chart or scatter chart.

Properties of Regression Line
Box Type, Line Styles, Number of Regression Lines, Polynomial Exponent, Properties, Regression Type

Repeater

A table into which you can insert items that will be repeated.

Properties of Repeater
Master Detail Relationships, Name, Pagination, Properties, Query, Render Variable, Rows Per Page

Repeater Table

Renders query data in a table.
Properties of Repeater Table

Across, Background Color, Background Image, Border, Box Type, Class, Down, Floating, Font, Foreground Color, Grouping & Sorting, Horizontal Alignment, Margin, Master Detail Relationships, Name, Pagination, Properties, Query, Relative Alignment, Render Variable, Repeater Direction, Size & Overflow, Style Variable, Table Properties, Text Flow & Justification, Visible

Repeater Table Cell

The contents of a repeater table object.

Properties of Repeater Table Cell

Background Color, Background Image, Border, Box Type, Class, Font, Foreground Color, Horizontal Alignment, Padding, Render Variable, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

Rich Text Item

Inserts an object that is used to render a subset of HTML in the layout. The HTML may come from either a static or dynamic source, and the object will also render in PDF output. For information about what elements are allowed in rich text items, see Inserting Other Objects.

Properties of Rich Text Item

Aggregate Function, Data Item Label, Data Item Value, Description, Expression, HTML, HTML Source Variable, Label, Name, Name, Render Variable, Report Expression, Rollup Aggregate Function, Source Type

Scatter Chart

A point chart that plots one or more data series against two measures. Multiple points are plotted for each category.

Properties of Scatter Chart

Background Color, Background Image, Baselines, Border, Border Color, Borders, Box Type, Class, Conditional Palette, Drill Throughs, Fill Effects, Floating, Font, Footer, Foreground Color, Legend, Margin, Markers, Marker Text Location, Master Detail Relationships, Name, Notes, Padding, Pagination, Palette, Point Shape, Point Size (pt), Query, Regression Line, Relative Alignment, Render Variable, Size & Overflow, Style Variable, Subtitle, Title, Tooltips, Value Location, Values, Visible

Select & Search Prompt

An advanced prompt control that allows you to search for values.

Properties of Select & Search Prompt

Allow Is Missing, Box Type, Cascade Source, Case Insensitive, Data Format, Display Value, Floating, Hide Adornments, Multi-Select, Name, Parameter, Query, Render Variable, Required, Rows Per Page, Sorting, Static Choices, Style Variable, Use Value, Visible

Slicer Member Set

A member expression.

Properties of Slicer Member Set

Expression
SQL
An SQL query against a relational data source.

Properties of SQL
Data Source, Name, SQL, SQL Syntax

Summary Filter
A set of conditions in a query that narrow the scope of the data returned. A summary filter is applied after aggregation is complete.

Properties of Summary Filter
Expression, Scope, Usage

Table
A collection of cells in which objects can be organized in a grid fashion.

Properties of Table
Background Color, Background Image, Border, Box Type, Class, Floating, Font, Foreground Color, Horizontal Alignment, Margin, Name, Relative Alignment, Render Variable, Size & Overflow, Style Variable, Table Properties, Text Flow & Justification, Visible

Table Cell
The cells within a row.

Properties of Table Cell
Background Color, Background Image, Border, Box Type, Class, Font, Foreground Color, Horizontal Alignment, Padding, Size & Overflow, Spacing & Breaking, Style Variable, Text Flow & Justification, Vertical Alignment, White Space

Table Row
The rows in a table.

Properties of Table Row
Background Color, Background Image, Box Type, Class, Font, Foreground Color, Horizontal Alignment, Style Variable, Vertical Alignment

Target Measure
The target measure for a metrics chart.

Properties of Target Measure
Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

Text Box Prompt
A prompt control that allows you to type in a value.
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**Properties of Text Box Prompt**
- Allow Is Missing, Background Color, Border, Box Type, Default Selections, Floating, Font, Foreground Color, Hide Adornments, Hide Text, Multi-Line, Multi-Select, Name, Numbers Only, Parameter, Range, Relative Alignment, Render Variable, Required, Size & Overflow, Style Variable, Use Thousands Separator, Visible

**Text Item**
A text item in a report. The content can be static text, or it can come from a query item or report expression.

**Properties of Text Item**
- Aggregate Function, Background Color, Background Image, Border, Box Type, Class, Data Format, Data Item Label, Data Item Value, Drill Throughs, Expression, Floating, Font, Foreground Color, Label, Margin, Maximum Characters, Name, Name, Padding, Relative Alignment, Render Variable, Report Expression, Rollup Aggregate Function, Size & Overflow, Source Type, Spacing & Breaking, Style Variable, Text, Text Flow & Justification, Text Source Variable, Visible

**Time Prompt**
An advanced prompt control that allows you to select a time value.

**Properties of Time Prompt**
- Allow Is Missing, Box Type, Clock Mode, Default Selections, Display Milliseconds, Display Seconds, Floating, Hide Adornments, Multi-Select, Name, Parameter, Range, Render Variable, Required, Select UI, Style Variable, Visible

**Tolerance Measure**
The tolerance measure for a metrics chart.

**Properties of Tolerance Measure**
- Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

**Total Column**
A column or bar representing the total cumulative value of all other columns or bars in a progressive chart.

**Properties of Total Column**
- Aggregate Function, Data Item Value, Expression, Label, Name, Properties, Report Expression, Rollup Aggregate Function, Text, Total Column Color

**Total Column Label**
The label to be rendered for the total column.

**Properties of Total Column Label**
- Properties

**Tree Prompt**
A data driven prompt control that shows hierarchical information and allows you to select one or more members.
Properties of Tree Prompt
Cascade Source, Default Selections, Floating, Hide Adornments, Multi-Select, Name, Parameter, Pre-populate If Parent Optional, Pre-populate Levels, Query, Render Variable, Required, Rows Per Page, Size & Overflow, Sorting, Style Variable, Use Value, Visible

Value Prompt
A prompt control that allows you to select one or more values from a list.

Properties of Value Prompt
Allow Is Missing, Auto-Submit, Background Color, Box Type, Cascade Source, Data Format, Default Selections, Display Value, Floating, Font, Foreground Color, Hide Adornments, Multi-Select, Name, Parameter, Pre-populate If Parent Optional, Query, Range, Relative Alignment, Render Variable, Required, Rows Per Page, Select UI, Size & Overflow, Sorting, Static Choices, Style Variable, Use Value, Visible

Variable
A report variable.

Properties of Variable
Name, Report Expression, Type

X Axis
The horizontal numeric axis for the chart, including labels, titles, range, and scale.

Properties of X Axis
Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

X Axis
The axis line for an ordinal, or non-numeric, axis.

Properties of X Axis
Allow 45° Rotation, Allow 90° Rotation, Allow Skip, Allow Stagger, Axis Labels, Axis Line, Axis Title, Class, Display Frequency, Drill Throughs, First Label Index, Font, Foreground Color, Gridlines, Label Control, Maximum Truncation Characters, Minor Gridlines, Style Variable, Truncation, Truncation Text, Visible

X Axis Measure
The measure for the horizontal axis of a scatter chart or bubble chart.

Properties of X Axis Measure
Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

Y Axis
The vertical numeric axis for the chart, including labels, titles, range, and scale.
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**Properties of Y Axis**

- Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

**Y Axis**

The axis line for an ordinal, or non-numeric, axis.

**Properties of Y Axis**

- Allow 45° Rotation, Allow 90° Rotation, Allow Skip, Allow Stagger, Axis Labels, Axis Line, Axis Title, Class, Display Frequency, Drill Throughs, First Label Index, Font, Foreground Color, Gridlines, Label Control, Maximum Truncation Characters, Minor Gridlines, Style Variable, Truncation, Truncation Text, Visible

**Y Axis 1**

The numeric axis of a metrics chart, or the primary numeric axis of a combination chart.

**Properties of Y Axis 1**

- Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

**Y Axis 2**

The secondary numeric axis of a combination chart.

**Properties of Y Axis 2**

- Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

**Y Axis Measure**

The measure for the vertical axis of a scatter chart or bubble chart.

**Properties of Y Axis Measure**

- Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable

**Z Axis**

The third numeric axis for a three-dimensional scatter chart, including labels, titles, range, and scale.

**Properties of Z Axis**

- Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible

**Z Axis**

The vertical numeric axis for a three-dimensional combination chart, including labels, titles, range, and scale.
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**Properties of Z Axis**

*Axis Labels, Axis Line, Axis Title, Class, Data Format, Font, Foreground Color, Gridlines, Include Zero For Auto Scale, Maximum Value, Minimum Value, Minor Gridlines, Scale, Scale Interval, Style Variable, Use Same Range For All Instances, Visible*

**Z Axis Measure**

The measure for the third axis of a three-dimensional scatter chart.

**Properties of Z Axis Measure**

*Aggregate Function, Custom Label, Data Format, Expression, Label, Name, Rollup Aggregate Function, Solve Order, Style Variable*

**Report Studio Properties**

The following is a list of properties available in the lower left pane of Report Studio.

**3-D Viewing Angle**

Specifies the 3-D viewing angle of the chart.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart

**Absolute Position**

Specifies that the legend will be positioned absolutely, by setting its pixel position.

**Applies to**

Legend

**Across**

Sets the number of times across, or horizontally, that the contents of the object may be rendered. The default value depends on the setting of the Repeater Direction property. If it is set to Left to right, top to bottom, the default is one. If it is set to Top to bottom, left to right, the default is 20.

**Applies to**

Repeater Table

**Aggregate Function**

Specifies the type of aggregation to apply. The Automatic setting means that the application groups or aggregates based on the data type. The Aggregate setting means that any setting found in the model will be used to determine the type of aggregation.

**Applies to**

Angular Measure, Baseline, Baseline, Baseline, Baseline, Bubble Measure, Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Cumulation Line Label, Data Item, Default Measure, HTML Item, Image, List Cell, List Column Body, List Column Title, Map Location, Map Location, Map Refinement Location, Map Refinement Location, Marker, Point Measure, Point Size Measure, Radial Measure, Region Measure, Rich Text Item, Target Measure, Text Item, Tolerance Measure, Total Column, X Axis Measure, Y Axis Measure, Z Axis Measure
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**Allow 45° Rotation**

Specifies whether the labels can be rotated 45 degrees if the labels are long.

**Applies to**

Ordinal Axis, X Axis, Y Axis

**Allow 90° Rotation**

Specifies whether the labels can be rotated 90 degrees if the labels are long.

**Applies to**

Ordinal Axis, X Axis, Y Axis

**Allow Is Missing**

Allows missing values.

For example, you have a list with the columns Product line, Product type, and Quantity. For the personal accessory binoculars, no quantity exists. If you filter the report on Product line to show only personal accessories, binoculars will appear in the report.

**Applies to**

Date & Time Prompt, Date Prompt, Interval Prompt, Select & Search Prompt, Text Box Prompt, Time Prompt, Value Prompt

**Allow Skip**

Specifies whether some labels can be skipped if they are long.

**Applies to**

Ordinal Axis, X Axis, Y Axis

**Allow Stagger**

Specifies whether the labels can be staggered if they are long.

**Applies to**

Ordinal Axis, X Axis, Y Axis

**Angular Axis**

Specifies whether the axis is rendered.

**Applies to**

Polar Chart

**Application**

Specifies if the condition will be applied before or after aggregation and summarization. When true, the condition will apply to the summarized rows, and a fact, or aggregate, in the expression will be interpreted as the aggregated value of the summarized rows. When false, the condition will apply to the detail database rows from the tabular result set prior to aggregation or summarization, and a fact, or aggregate, in the expression will be interpreted as the individual database value before it has been summarized. This property has no effect on OLAP data sources, on references to non-aggregate items, or when automatic summarization is disabled.
Applies to
Detail Filter

**Auto Group & Summarize**

Specifies whether the application will apply suggested aggregate functions to aggregate data items and group all non-aggregate data items, producing groups and summary rows. If it is set to No, detail rows will be rendered.

**Applies to**
Query

**Auto-Sort**

When running the report, specifies whether to automatically sort based on data type.

**Applies to**
Query

**Auto-Submit**

Specifies whether the application submits the prompt page automatically, as soon as a value is changed.

**Applies to**
Value Prompt

**Auto Truncation**

Specifies whether to allow truncation of text.

**Applies to**
Legend

**Avoid Division by Zero**

Specifies whether the application will return a null value when it encounters a division by zero.

**Applies to**
Query

**Avoid Label Collision**

Controls how labels are arranged. If set to false, the chart uses the default positions. If set to true, the chart uses a different layout to avoid label collision. To keep existing reports unchanged, set this property to false.

**Applies to**
Pie Chart

**Axis Assignment**

Specifies the numeric axis to use.

**Applies to**
Area, Bar, Baseline, Line, Marker
Appendix F: Report Studio Object and Property Reference

**Axis Assignment**

Specifies which numeric axis to use.

**Applies to**

Baseline

**Axis Labels**

Specifies whether to show or hide axis labels.

**Applies to**

Angular Axis, Cumulation Line Axis, Numerical Axis, Numerical Axis, Ordinal Axis, Radial Axis, X Axis, X Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

**Axis Line**

Specifies the properties of the axis line in a chart.

**Applies to**

Angular Axis, Cumulation Line Axis, Numerical Axis, Numerical Axis, Ordinal Axis, Radial Axis, X Axis, X Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

**Axis Title**

Specifies whether an axis title will be rendered.

**Applies to**

Angular Axis, Cumulation Line Axis, Gauge Chart, Map, Numerical Axis, Numerical Axis, Ordinal Axis, Pie Chart, Radial Axis, X Axis, X Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

**Background Color**

Specifies the background color for the object.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Caption, Chart Body, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Field Set, Gauge Chart, Hyperlink, Hyperlink Button, Image, Legend, List, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map, Metrics Range Chart, Note Content, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater Table, Repeater Table Cell, Scatter Chart, Table, Table Cell, Table Row, Text Box Prompt, Text Item, Value Prompt

**Background Image**

Specifies an image to be used as the background for the object.
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Bar, Line, or Area Index

Specifies which combination object to use when calculating the position.

**Applies to**
Baseline, Baseline, Marker

Baselines

 Specifies baselines.

**Applies to**
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Metrics Range Chart, Pareto Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Block Variable

Specifies a variable based on which the block can be conditionally rendered.

**Applies to**
Conditional Block, Conditional Block

Border

Specifies the width, style, and color for the border of the object.

**Applies to**
3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Caption, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Field Set, Gauge Chart, Hyperlink, Hyperlink Button, Image, Legend, List, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map, Metrics Range Chart, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater Table, Repeater Table Cell, Scatter Chart, Table, Table Cell, Table Row, Text Item

Border Color

Specifies the color of the border.
Appends to

3-D Area, 3-D Bar, 3-D Line, 3-D Scatter Chart, Area, Bar, Bubble Chart, Display Layer, Gauge Chart, Legend, Line, Pareto Chart, Pie Chart, Point Layer, Polar Chart, Progressive Chart, Radar Chart, Region Layer, Scatter Chart

Borders

Specifies whether borders are rendered.

Appends to

3-D Area, 3-D Bar, 3-D Line, 3-D Scatter Chart, Area, Bar, Bubble Chart, Display Layer, Gauge Chart, Legend, Line, Pareto Chart, Pie Chart, Point Layer, Polar Chart, Progressive Chart, Radar Chart, Region Layer, Scatter Chart

Bottom Position (px)

Specifies the bottom position of the note, in pixels.

Appends to

Note

Bottom Position (px)

Specifies the pixel position of the bottom edge of the legend.

Appends to

Legend

Box Type

Specifies whether to override the default box type for the object. When set to None, the object is not rendered and its space is not reserved in the report. When set to Inline, you can insert other objects on the same line as the object. When set to Block, you can insert other objects only on the lines above and below the object.

Appends to

3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Field Set, Gauge Chart, Hyperlink, Image, List, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Repeater Table, Scatter Chart, Table, Text Item

Box Type

Specifies whether to override the default box type for the object.

Appends to

Axis Title, Baseline, Baseline, Baseline, Baseline, Chart Footer, Chart Subtitle, Chart Title, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Row, Crosstab Space, Date & Time Prompt, Date Prompt, Interval Prompt, Legend, Legend Title, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Marker, Marker, Note, Note Content, Page Body, Page Footer, Page Header, Regression Line, Repeater Table Cell, Select & Search Prompt, Table Cell, Table Row, Text Box Prompt, Time Prompt, Value Prompt
**Calculation Intersection**

Specifies that if an edge member intersects with a calculated member, the resulting cell value should be N/A.

**Applies to**

Data Item

**Calendar Type**

Specifies the type of calendar to show. The date values are mapped to the selected calendar before being formatted. The default value is inherited from the user's content language.

**Applies to**

Date & Time Prompt, Date Prompt

**Caption**

Specifies the caption for the level.

**Applies to**

Level

**Caption**

Specifies the caption.

**Applies to**

Calculated Member

**Cardinality**

Specifies the cardinality for this join operand.

**Applies to**

Query Reference

**Cascade Source**

Specifies the parameter value that cascades to the prompt item.

**Applies to**

Select & Search Prompt, Tree Prompt, Value Prompt

**Case Insensitive**

Specifies whether to perform a case insensitive search by default.

**Applies to**

Select & Search Prompt

**Catalog**

Specifies the OLAP catalog.
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Chart Orientation

Specifies whether the chart is rendered vertically or horizontally.

Applies to
Combination Chart, Pareto Chart, Progressive Chart

Chart Type

Specifies whether the data may be rendered as either a bar, line, or area.

Applies to
Area, Bar, Line

Chart Type

Specifies whether the data may be rendered as either a bar, line or area.

Applies to
3-D Area, 3-D Bar, 3-D Line

Class

Specifies a class to apply to the object. The Class provides a default style.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Angular Axis, Axis Title, Block, Bubble Chart, Caption, Chart Footer, Chart Subtitle, Chart Title, Combination Chart, Conditional Block, Conditional Block, Crosstab, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Cumulation Line Axis, Field Set, Gauge Chart, Gauge Labels, Hyperlink, Hyperlink Button, Image, Legend, Legend Title, List, List Cell, List Column Body, List Column Title, Map, Metrics Range Chart, Note Content, Numerical Axis, Numerical Axis, Ordinal Axis, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Pie Labels, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Radial Axis, Repeater Table, Repeater Table Cell, Scatter Chart, Table, Table Cell, Table Row, Text Item, X Axis, X Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

Clock Mode

Specifies whether the arms of the clock move.

Applies to
Date & Time Prompt, Time Prompt

Color Legend Title

Specifies a title within the legend above the palette for the region color. If this object is not defined, no additional title is drawn. If no legend is drawn, this object is ignored. Styling for this object is inherited from the legend title.

Applies to
Region Layer
Color Legend Title
Specifies a title within the legend above the palette for the point color. If this object is not defined, no additional title is drawn. If no legend is drawn, this object is ignored. Styling for this object is inherited from the legend title.

Applies to
Point Layer

Column Intersection
Uniquely identifies the column of a node member or spacer on an edge of the crosstab. You cannot modify this value.

Applies to
Crosstab Intersection, Crosstab Member Fact Cells

Column Titles
Specifies where or whether column titles may be rendered.

Applies to
List

Component Reference
Specifies the layout object that is referenced. An object is a reusable component only if it has a name.

Applies to
Layout Component Reference

Conditional Palette
Specifies a conditional palette for the chart.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Gauge Chart, Metrics Range Chart, Pareto Chart, Pie Chart, Point Layer, Polar Chart, Progressive Chart, Radar Chart, Region Layer, Scatter Chart

Connecting Lines
Specifies the properties of the lines that connect the segments of a stacked bar. This property is ignored for clustered bars.

Applies to
Bar, Pareto Chart, Progressive Chart
Contents Height
Specifies the relative height of list rows. This property is used only when a list has a height defined in the Size and Overflow property.

- Stretched means that the rows will be evenly sized to fit in the list’s height. This is default HTML behavior.
- Minimal means that rows will take up only as much space as they need, and be compressed at the top of the list. You can position a footer at the bottom of the list by setting the Push To Bottom property to Yes on a footer object inside the list.

Applies to
List

Cross Product Allowed
Specifies whether the query will be allowed to run if there is a cross join between database tables. This type of query generates a result set that includes all possible unique combinations of values from the first and second table. The default value is Deny.

Applies to
Query

Cumulation Axis
Specifies whether the cumulation axis may be rendered.

Applies to
Cumulation Line

Cumulation Label
Specifies whether a label for the cumulation line may be rendered.

Applies to
Cumulation Line

Cumulative Line
Specifies whether the cumulation line is rendered.

Applies to
Pareto Chart

Current Block
Specifies which block is currently being authored.

Applies to
Conditional Block, Conditional Block

Custom Label
Overrides the default label for the data item.
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Data Format

Specifies the data format of the object.

Applies to

Angular Axis, Angular Measure, Bubble Measure, Chart Node Member, Chart Text Item, Crosstab Columns, Crosstab Columns, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, CrosstabRows, Crosstab Space, Cumulation Line Axis, Default Measure, Gauge Numerical Axis, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map Location, Map Refinement Location, Map Refinement Location, Numerical Axis, Numerical Axis, Point Measure, Point Size Measure, Radial Axis, Radial Measure, Region Measure, Select & Search Prompt, Target Measure, Text Item, Tolerance Measure, Value Prompt, X Axis, X Axis Measure, Y Axis, Y Axis 1, Y Axis 2, Y Axis Measure, Z Axis, Z Axis, Z Axis Measure

Data Item

Specifies a reference to a data item. You cannot modify this value.

Applies to

Crosstab Node Member, Member Set

Data Item

Specifies a reference to a data item.

Applies to

Calculated Member, Fact, Key, Member Property

Data Item Label

Specifies the data item label that defines the text to render.

Applies to

Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Cumulation Line Label, Hyperlink, Hyperlink Button, List Cell, List Column Body, List Column Title, Text Item

Data Item Label

Specifies the data item label that defines the HTML to render.

Applies to

Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, HTML Item, List Cell, List Column Body, List Column Title, Rich Text Item
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**Data Item Label**

Specifies the data item label that defines the URL.

**Applies to**

- Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Hyperlink, Hyperlink Button, Image, List Cell, List Column Body, List Column Title

**Data Item Label**

Specifies the data item label that defines the bookmark. The value used as the bookmark reference must match this value.

**Applies to**

- Bookmark, Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, List Cell, List Column Title

**Data Item Value**

Specifies the data item value that defines the text to render.

**Applies to**

- Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Cumulation Line Label, Hyperlink, Hyperlink Button, List Cell, List Column Body, List Column Title, Text Item, Total Column

**Data Item Value**

Specifies the data item value that defines the HTML to render.

**Applies to**

- Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, HTML Item, List Cell, List Column Body, List Column Title, Rich Text Item

**Data Item Value**

Specifies the data item value that defines the URL.

**Applies to**

- Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Hyperlink, Hyperlink Button, Image, List Cell, List Column Body, List Column Title

**Data Item Value**

Specifies the data item value that defines the bookmark. The value used as the bookmark reference must match this value.

**Applies to**

- Bookmark, Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, List Cell, List Column Title
Data Item Value

Specifies the numeric position by using a data item value.

**Applies to**
Baseline, Baseline, Baseline, Baseline, Marker

Data Item Value

Specifies the numeric position of a data item.

**Applies to**
Marker

Data Item Value

Specifies the numeric position from a data item.

**Applies to**
Marker

Data Language

Specifies the language of the data.

**Applies to**
Map

Data Source

Specifies the query data source.

**Applies to**
MDX, SQL

Default Measure

Specifies the default measure to use for a crosstab or chart. If the measures of the crosstab or chart cannot be determined by what is being rendered on the edges, then the default measure will be rendered.

**Applies to**
Crosstab

Default Measure Solve Order

Specifies the solve order in crosstabs and charts. The item with the lowest solve order value is calculated first, followed by the next lowest value, and so on. For identical values, in crosstabs, column items are calculated first, then row items, and then the measure. In charts, x-axis items are calculated first and then legend items.

**Applies to**
Crosstab
Default Selections

Specifies the collection of default selections for a prompt control.

**Applies to**

Date & Time Prompt, Date Prompt, Interval Prompt, Text Box Prompt, Time Prompt, Tree Prompt, Value Prompt

Default Title

Specifies whether the default title may be generated.

**Applies to**

Axis Title, Legend Title

Define Contents

Overrides the content of the selected crosstab intersection.

**Applies to**

Crosstab Intersection, Crosstab Member Fact Cells

Define Member Sets

Specifies the set structure of a query. If it is not defined, it is assumed that each data item defines an unrelated set.

**Applies to**

Query

Depth

Specifies the depth of the chart. A value of zero indicates a flat chart.

**Applies to**

Combination Chart, Metrics Range Chart, Pareto Chart, Pie Chart, Progressive Chart

Description

Specifies a description for the object, that is used to assist authoring.

**Applies to**

Class, HTML Item, Metric Studio Diagram, Rich Text Item

Detail

Specifies whether the data item is to be used for calculating aggregates or not. When set to Yes, the data item is used to aggregate the lowest level details.

**Applies to**

Data Item

Diagram Identifier

Identifies a diagram in Metric Studio.
**Applies to**
Metric Studio Diagram

**Dial Outline Color**
Specifies the dial outline color in a gauge chart.

**Applies to**
Gauge Chart

**Dictionary**
Specifies the aliases to use when matching data values to feature names in the map.

**Applies to**
Map

**Display After Overall Header**
Specifies whether the list page header is to be rendered after the overall header.

**Applies to**
List Page Header

**Display Frequency**
Specifies the frequency for which chart labels are to be rendered. If set to 3, for example, every third label will be rendered.

**Applies to**
Ordinal Axis, X Axis, Y Axis

**Display Milliseconds**
Specifies whether to show the milliseconds. The format of the milliseconds can be controlled by selecting a specific format. This property is ignored if seconds are not rendered. The default value is inherited from the user's content language.

**Applies to**
Date & Time Prompt, Interval Prompt, Time Prompt

**Display Seconds**
Specifies whether to show the seconds. The format of the seconds can be controlled by selecting a specific format. The default value is inherited from the user's content language.

**Applies to**
Date & Time Prompt, Interval Prompt, Time Prompt

**Display Value**
Specifies the values rendered to the report user when the prompt is used. These values can be different than the ones that are actually used by the report.

**Applies to**
Select & Search Prompt, Value Prompt
Appendix F: Report Studio Object and Property Reference

**Down**

Specifies the number of times down, or rows, that the frame contents may be rendered. The default value depends on the setting of the Repeater Direction property. If it is set to Left to right, top to bottom, the default is 20. If it is set to Top to bottom, left to right, the default is one.

**Applies to**
Repeater Table

**Drill Throughs**

Specifies a drill-through target for the object.

**Applies to**
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Gauge Chart, Gauge Labels, Image, Legend, List Column Body, List Column Title, Map, Metrics Range Chart, Ordinal Axis, Pareto Chart, Pie Chart, Pie Labels, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart, Text Item, X Axis, Y Axis

**Duplicates**

Specifies whether duplicate rows will be preserved or removed.

**Applies to**
Query Operation

**Embed**

Specifies how to embed the reference object. A reference, or pointer, to the object is stored, by default. Alternatively, a copy of the external object can be stored in the report.

**Applies to**
Layout Component Reference

**Execution Optimization**

Specifies how much of the query processing is performed by the client and how much is performed by the database server. If the database server can perform all the query processing, it does.

If All Rows is selected, the optimizer adopts a plan that retrieves all rows of the result set in the least amount of time. This value is generally used in a batch environment.

If First Rows is selected, the optimizer adopts a plan that retrieves the first row as quickly as possible. This value is generally used in an interactive environment.

If Incremental is selected, the optimizer retrieves the first N rows, and then retrieves the next N rows.

**Applies to**
Query

**Expression**

Specifies the expression to evaluate when filtering the data.

**Applies to**
Detail Filter, Summary Filter
Expression

Specifies the expression that defines the slicer member.

Applies to
Slicer Member Set

Expression

Specifies the expression used to populate the data item.

Applies to
Angular Measure, Baseline, Baseline, Baseline, Baseline, Bubble Measure, Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Cumulation Line Label, Data Item, Default Measure, HTML Item, Image, List Cell, List Column Body, List Column Title, Map Location, Map Location, Map Refinement Location, Map Refinement Location, Marker, Point Measure, Point Size Measure, Radial Measure, Region Measure, Rich Text Item, Target Measure, Text Item, Tolerance Measure, Total Column, X Axis Measure, Y Axis Measure, Z Axis Measure

Face Color

Specifies the color to show on the face of each gauge in a gauge chart.

Applies to
Gauge Chart

Fact Cells Precedence

Specifies which style property will override the other style property for intersecting cells in a crosstab, the row's properties, or the column's properties.

This property only applies to style properties that are both set, but to different values. For example, if the row's background color is set to yellow and the column's background color is set to red, you can select which of these properties will override the other. If only the row or the column has a set background color, then that color will be used on the intersecting cell, regardless of this setting.

Applies to
Crosstab

Fill Effects

Specifies the fill effects for the object.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Chart Body, Combination Chart, Display Layer, Gauge Chart, Legend, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Point Layer, Polar Chart, Progressive Chart, Radar Chart, Region Layer, Scatter Chart

First Column Color

Specifies the color, gradient, or pattern to be used for the first column in the progressive chart.

Applies to
Progressive Chart
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**First Date**

Specifies the earliest date to render in the control, and the earliest date that can be selected. The date entered must be in YYYY-MM-DD format.

**Applies to**

Date & Time Prompt, Date Prompt

**First Label Index**

Specifies which label will be rendered first. If set to 5, for example, the fifth label will be the first label rendered. Subsequent labels will be rendered as defined in the Display Frequency property.

**Applies to**

Ordinal Axis, X Axis, Y Axis

**Floating**

Specifies how objects flow around an object.

Float controls the way the content that follows the selected object will flow around or below it. Clear controls where the selected object is positioned, relative to other floating objects.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Date & Time Prompt, Date Prompt, Field Set, Gauge Chart, Hyperlink, Hyperlink Button, Image, Interval Prompt, List, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater Table, Scatter Chart, Select & Search Prompt, Table, Text Box Prompt, Text Item, Time Prompt, Tree Prompt, Value Prompt

**Font**

Specifies the font family, size, weight, style, and effects used to display the object's text.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart, Angular Axis, Axis Title, Block, Bubble Chart, Caption, Chart Body, Chart Footer, Chart Subtitle, Chart Title, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Cumulation Line Axis, Field Set, Gauge Chart, Gauge Labels, Gauge Numerical Axis, Hyperlink, Legend, Legend Title, List, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map, Metrics Range Chart, Note Content, Numerical Axis, Numerical Axis, Ordinal Axis, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Pie Labels, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Radial Axis, Repeater Table, Repeater Table Cell, Scatter Chart, Table, Table Cell, Table Row, Text Box Prompt, Text Item, Value Prompt, X Axis, X Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

**Font Auto-Sizing**

Specifies whether to allow automatic resizing of the font.

**Applies to**

Legend
Footer

Specifies whether a chart footer is rendered.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Gauge Chart, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Foreground Color

Specifies the color of the object's text.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Angular Axis, Axis Title, Block, Bubble Chart, Caption, Chart Body, Chart Footer, Chart Subtitle, Chart Title, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Cumulation Line Axis, Field Set, Gauge Chart, Gauge Labels, Gauge Numerical Axis, Hyperlink, Hyperlink Button, Legend, Legend Title, List, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map, Metrics Range Chart, Note Content, Numerical Axis, Numerical Axis, Ordinal Axis, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Pie Labels, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Radial Axis, Repeater Table, Repeater Table Cell, Scatter Chart, Table, Table Cell, Table Row, Text Box Prompt, Text Item, Value Prompt, X Axis, X Axis, Y Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

Gauge Labels

Specifies whether gauge labels are rendered.

Applies to
Gauge Chart

Gauge Palette

Specifies the palette that controls the look of the dialog portion of a gauge.

Applies to
Gauge Chart

Generated SQL/MDX

Shows the generated SQL or MDX.

Applies to
Query

Gridlines

Specifies the properties of the gridlines in a chart.

Applies to
Angular Axis, Cumulation Line Axis, Gauge Numerical Axis, Numerical Axis, Numerical Axis, Ordinal Axis, Radial Axis, X Axis, X Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis
Appendix F: Report Studio Object and Property Reference

**Grouping & Sorting**
Specifies the grouping and sorting structure.

**Applies to**
List, Page Set, Repeater Table

**Grouping Type**
Specifies whether the absolute, stacked, or 100 percent stacked data may be drawn.

**Applies to**
Area, Bar, Line

**Group Span**
Specifies the group that this cell should visually span.

**Applies to**
List Column Body

**Has Fact Cells**
Specifies the contents of the fact cells of the crosstab. There is only one fact cell definition for the crosstab, regardless of the number of measures.

**Applies to**
Crosstab

**Height (px)**
Specifies the height of the note, in pixels.

**Applies to**
Note

**Hide Adornments**
Specifies whether to hide the asterisk (*) on required prompts and arrow (->) on type-in prompts that are in an error state.

**Applies to**
Date & Time Prompt, Date Prompt, Generated Prompt, Interval Prompt, Select & Search Prompt, Text Box Prompt, Time Prompt, Tree Prompt, Value Prompt

**Hide Text**
Specifies whether to replace characters entered in the prompt control with asterisk (*) characters.

**Applies to**
Text Box Prompt

**Hole Size (%)**
Specifies the size of the hole in a donut chart. A value of zero indicates a pie chart.
Horizontal Alignment

Specifies how the contents of the cells of a table column is aligned.

Applies to

- Block, Chart Body, Chart Footer, Chart Subtitle, Chart Title, Class, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Field Set, Gauge Labels, Legend, Legend Title, List, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Note Content, Page, Page Body, Page Footer, Page Header, Pie Labels, Repeater Table, Repeater Table Cell, Table, Table Cell, Table Row

HTML

Specifies the static text used as HTML.

Applies to

- Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, HTML Item, List Cell, List Column, List Column Body, List Column Title, Rich Text Item

HTML Source Variable

Specifies a variable based on which the HTML source is chosen.

Applies to

- Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, HTML Item, List Cell, List Column, List Column Body, List Column Title, Rich Text Item

Ignore Data with No Features

Specifies whether to allow data that has no corresponding features. When set to Yes, data with no corresponding features will be ignored. When set to No, the map will not run if it contains data with no corresponding features.

Applies to

- Map

Include Zero For Auto Scale

Specifies whether the value zero is included in the automatic calculation of the numeric scale. It is only relevant if the chart is involved in a master detail relationship.

Applies to

- Angular Axis, Cumulation Line Axis, Gauge Numerical Axis, Numerical Axis, Numerical Axis, Radial Axis, X Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis
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**Indentation Length**

If specified, the members are indented according to their level in the hierarchy. The string value represents a CSS length (for example, 10 px, 0.5 in, etc.). If not specified, then the members are rendered in a flat list with no indenting.

**Applies to**

Crosstab Node Member

**Indentation Start Level**

If specified, indentation of members will only start at the indicated level member. The default level (usually All) is at index zero (0).

**Applies to**

Crosstab Node Member

**Intersection Name**

Uniquely identifies a node member or spacer on an edge of a crosstab. Used by the Crosstab Intersection object to uniquely identify the intersection of elements from each edge. You cannot modify this value.

**Applies to**

Crosstab Node Member, Crosstab Space

**Join Relationships**

Specifies how to join the two queries.

**Applies to**

Join

**Label**

Specifies the static text that defines the bookmark. The value used as the bookmark reference must match this value.

**Applies to**

Bookmark, Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, List Cell, List Column Body, List Column Title

**Label**

Specifies the class label for a local class.

**Applies to**

Class

**Label**

Specifies the class label for a global class. You cannot modify this label.

**Applies to**

Class
Label

Specifies whether a label is rendered for the baseline.

**Applies to**

Baseline, Baseline

Label

Specifies whether a label is rendered for the marker.

**Applies to**

Marker, Marker

Label

Specifies the label of the object.

**Applies to**

Angular Measure, Baseline, Baseline, Baseline, Baseline, Bubble Measure, Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Cumulation Line Label, Data Item, Default Measure, HTML Item, Image, List Cell, List Column Body, List Column Title, Map Location, Map Location, Map Refinement Location, Map Refinement Location, Marker, Point Measure, Point Size Measure, Radial Measure, Region Measure, Rich Text Item, Target Measure, Text Item, Tolerance Measure, Total Column, X Axis Measure, Y Axis Measure, Z Axis Measure

Label Control

Controls how the labels in a chart are rendered.

**Applies to**

Ordinal Axis, X Axis, Y Axis

Labels

Specifies whether labels are rendered in the chart.

**Applies to**

Display Layer, Point Layer, Region Layer

Labels

Specifies whether labels are rendered.

**Applies to**

Pie Chart

Last Date

Specifies the latest date rendered in the control, and the last date that can be selected. The date entered must be in YYYY-MM-DD format.

**Applies to**

Date & Time Prompt, Date Prompt
**Left Position (px)**

Specifies the left position of the note, in pixels.
The position is measured from the left edge of the note.

**Applies to**
*Note*

**Left Position (px)**

Specifies the pixel position of the left edge of the legend.

**Applies to**
*Legend*

**Legend**

Specifies whether the legend is rendered.

**Applies to**
*Bubble Chart, Combination Chart, Gauge Chart, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Radar Chart, Scatter Chart*

**Legend Label**

Specifies whether to render the baseline in the legend.

**Applies to**
*Baseline, Baseline*

**Legend Title**

Specifies whether a legend title is rendered.

**Applies to**
*Legend*

**Limit Type**

Specifies whether the limit is the maximum or minimum.

**Applies to**
*Baseline, Baseline, Baseline, Baseline*

**Line**

Specifies whether a line may be rendered. This allows you to show markers without lines.

**Applies to**
*Line*

**Line Style**

Specifies the style of the line.
**Applies to**

Line

**Line Styles**

Specifies the line style, color, and weight of the line.

**Applies to**

Baseline, Baseline, Baseline, Baseline, Cumulation Line, Regression Line

**Line Weight (pt)**

Specifies the line thickness in points. A value of zero indicates the thinnest possible line.

**Applies to**

Line

**Map & Layers**

Sets the map and layers for a map chart.

**Applies to**

Map

**Map Drills**

Controls the drill definitions in a map. It is possible to define different drill targets for each region or point.

**Applies to**

Point Layer, Region Layer

**Margin**

Specifies the margin properties for the object.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Caption, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Field Set, Gauge Chart, Hyperlink, Hyperlink Button, Image, List, Map, Metrics Range Chart, Page, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater Table, Scatter Chart, Table, Text Item

**Marker Color**

Specifies a color for the target value markers in a metrics chart.

**Applies to**

Metrics Range Chart

**Marker Label**

Specifies whether the label for the Target Marker will appear in the legend.

**Applies to**

Metrics Range Chart
Markers

Specifies markers.

Applies to
Bubble Chart, Combination Chart, Metrics Range Chart, Pareto Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Marker Text Location

Specifies where the text of the marker is rendered.

Applies to
Bubble Chart, Combination Chart, Metrics Range Chart, Pareto Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Master Detail Relationships

Specifies how a data container, or detail, is rendered inside another data container, or master.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Axis Title, Baseline, Baseline, Baseline, Baseline, Bubble Chart, Chart Footer, Chart Subtitle, Chart Title, Combination Chart, Crosstab, Gauge Chart, Legend Title, List, Map, Marker, Marker, Metrics Range Chart, Note Content, Page Set, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Repeater, Repeater Table, Scatter Chart

Maximum Characters

Specifies the maximum number of characters to show before the text is truncated.

Applies to
Legend, Text Item

Maximum Execution Time

Specifies a maximum period, in seconds, during which the query can execute. If this property is not set, there is no maximum period.

Applies to
Query

Maximum Rows Retrieved

Specifies the maximum number of database rows that the query can retrieve.

Applies to
Query

Maximum Size (pt)

Specifies the maximum size used for map point features that have corresponding data. For example, if the minimum size is 2pt and the maximum size is 12pt, the size of each point is calculated using linear interpolation that is based on its measure value.
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Applies to
Point Size Measure

Maximum Tables
Specifies the maximum number of tables that the query can retrieve.

Applies to
Query

Maximum Text Blob Characters
Specifies the maximum number of characters that the query is allowed to retrieve for each very large text item.

Applies to
Query

Maximum Truncation Characters
Specifies the maximum number of characters to show before the label is truncated.

If the Allow Truncation property is set to Yes and no value is specified in this property, the application will automatically determine the optimum number of characters after which to truncate. Use this property only if you want explicit control over the truncation level. Note that regardless of this property's setting, no truncation will occur if there is sufficient space.

Applies to
Gauge Labels, Ordinal Axis, Pie Labels, X Axis, Y Axis

Maximum Value
Specifies the maximum value for the numeric scale. If no value is specified, one will be calculated based on the data.

Applies to
Angular Axis, Cumulation Line Axis, Gauge Numerical Axis, Numerical Axis, Numerical Axis, Radial Axis, X Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

MDX
The text of the typed-in MDX. It is assumed to be appropriate for the type and data source. If it is not the query may fail or produce unexpected results.

Applies to
MDX

Member Offset (%)
Specifies a position relative to the next item in the chart. This is a percentage value. Negative values indicate before the member and positive values indicate after the member.

Applies to
Baseline
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**Minimum Size (pt)**

Specifies the minimum size used for map point features that have corresponding data. For example, if the minimum size is 2pt and the maximum size is 12pt, the size of each point is calculated using linear interpolation that is based on its measure value.

**Applies to**
Point Size Measure

**Minimum Value**

Specifies the minimum value for the numeric scale. If no value is specified, one will be calculated based on the data.

**Applies to**
Angular Axis, Cumulation Line Axis, Gauge Numerical Axis, Numerical Axis, Numerical Axis, Ordinal Axis, Radial Axis, X Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

**Minor Gridlines**

Specifies the properties of the minor gridlines in a chart.

**Applies to**
Angular Axis, Cumulation Line Axis, Gauge Numerical Axis, Numerical Axis, Numerical Axis, Ordinal Axis, Radial Axis, X Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

**Multi-Line**

Specifies whether to allow multi-line editing in the text control

**Applies to**
Text Box Prompt

**Multi-Select**

Specifies whether the control allows the selection of multiple values. Note that an associated parameterized filter expression will override this object’s setting. If you edit this property but do not get the expected results, check the associated expression for the presence of an operator that specifies how many items can be selected. Examples of multiple selection operators are "in" and "not in"; examples of single selection operators are equal (=), less than (<) and greater than (>).

For example, if you used the prompt wizard to create a parameterized filter expression and selected one of the operators that specify selection rules, changing the value of this property is not sufficient to change this restriction. You must also edit the filter’s expression to remove the offending operator.

To edit a filter expression, you must select the filter, which is accessible from the Query view, using the Explorer bar.

**Applies to**
Date & Time Prompt, Date Prompt, Interval Prompt, Select & Search Prompt, Text Box Prompt, Time Prompt, Tree Prompt, Value Prompt

**Name**

Specifies the name of the object.
Applies to

Angular Measure, Baseline, Bubble Measure, Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Cumulation Line Label, Data Item, Default Measure, Dimension, Fact, HTML Item, Image, Level, List Cell, List Column Body, List Column Title, Map Location, Map Location, Map Refinement Location, Marker, Member Set, Page, Page Set, Point Measure, Point Size Measure, Query, Radial Measure, Region Measure, Rich Text Item, Target Measure, Text Item, Tolerance Measure, Total Column, Variable, X Axis Measure, Y Axis Measure, Z Axis Measure

Name

Specifies a unique name that allows layout objects to be reused, usually to take advantage of any applied styling.

Applies to

3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Combination Chart, Crosstab, Date & Time Prompt, Date Prompt, Field Set, Gauge Chart, Generated Prompt, HTML Item, Hyperlink, Hyperlink Button, Image, Interval Prompt, List, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater, Repeater Table, Rich Text Item, Scatter Chart, Select & Search Prompt, Table, Text Box Prompt, Text Item, Time Prompt, Tree Prompt, Value Prompt

Name

Specifies the unique name identifier for a query operation.

Applies to

Query Operation

Name

Specifies the unique name identifier for an SQL object.

Applies to

SQL

Name

Specifies the unique name identifier for an MDX object.

Applies to

MDX

Name

Specifies a unique name that allows layout objects to be reused, usually to take advantage of any applied formatting.

Applies to

Calculated Member, Key, Level Hierarchy, Member Hierarchy, Member Property

Negative Column Color

Specifies the color, gradient, or pattern to be used for columns in the progressive chart that represent negative values.
Applies to
Progressive Chart

No Data Features Size (pt)
Specifies the point size used for map point features that do not have corresponding data.

Applies to
Map

Note Border
Specifies the properties for the border of a note.

Applies to
Note

Notes
Specifies notes.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Gauge Chart, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Number of Regression Lines
Specifies whether there will be one regression line for all the data or one for each series.

Applies to
Regression Line

Numbers Only
Specifies whether the Text Box Prompt allows numbers only.

Applies to
Text Box Prompt

Numerical Axis
Specifies whether the axis is rendered.

Applies to
3-D Combination Chart

Numerical Axis
Specifies whether the numeric axis of a gauge chart is rendered.

Applies to
Gauge Chart
**Numeric Value**

Specifies the numeric position by using a number.

**Applies to**
Baseline, Baseline, Baseline, Baseline, Marker

**Numeric Value**

Specifies the value of the numeric position.

**Applies to**
Marker

**Ordinal Axis**

Specifies whether the axis is rendered.

**Applies to**
Combination Chart, Metrics Range Chart, Progressive Chart, Radar Chart

**Outer Join Allowed**

Specifies whether outer joins are allowed on the object.

**Applies to**
Query

**Override Dimension Info**

Specifies dimension information for a query.

**Applies to**
Query

**Overrides**

Specifies whether to override child objects. Before you can override child objects, they must have a name.

**Applies to**
Layout Component Reference

**Padding**

Specifies the space between the object and the margin. If there is a border then it specifies the space between the object and the border.
Applies to
3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Caption, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Gauge Chart, Hyperlink, Hyperlink Button, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map, Metrics Range Chart, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater Table Cell, Scatter Chart, Table Cell, Text Item

Pagination
Specifies pagination rules, such as page breaks, keep-with properties, page counts, and numbering.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Crosstab, Crosstab Node Member, Crosstab Space, Gauge Chart, List, List Header, Map, Metrics Range Chart, Page, Page Set, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Repeater, Repeater Table, Scatter Chart

Palette
Specifies the palette to use for the chart.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Gauge Chart, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Palette
Map layers use the numeric palette, in which the color of a region or point is based on its numeric value.

Applies to
Point Layer, Region Layer

Parameter
Specifies the parameter that is satisfied by values chosen in the prompt control.

Applies to
Date & Time Prompt, Date Prompt, Generated Prompt, Interval Prompt, Select & Search Prompt, Text Box Prompt, Time Prompt, Tree Prompt, Value Prompt

Percentile
Specifies a position based on a data percentile value. This value must be greater than zero.

Applies to
Baseline, Baseline, Baseline, Baseline, Marker, Marker

Percent of Axis
Specifies a position based on a percentage along the numeric axis. This value must be greater than zero.
Applies to
Baseline, Baseline, Baseline, Baseline, Marker, Marker

**Performance Pattern**

Controls what portions of the range markers for tolerance and target ranges are rendered on a metrics chart.

**Applies to**
Metrics Range Chart

**Pie Labels**

Specifies whether pie labels are rendered.

**Applies to**
Pie Chart

**Point Color**

Specifies the color of the markers.

**Applies to**
Marker, Marker

**Point Shape**

Specifies the shape of the markers.

**Applies to**
Cumulation Line, Marker, Marker

**Point Shape**

Specifies the shape of the markers. If you choose a value of series or category, the marker shape varies accordingly.

**Applies to**
3-D Scatter Chart, Bubble Chart, Line, Polar Chart, Radar Chart, Scatter Chart

**Point Size (pt)**

Specifies the size of markers in points. A value of zero means do not show markers.

**Applies to**
3-D Scatter Chart, Bubble Chart, Cumulation Line, Line, Marker, Marker, Polar Chart, Radar Chart, Scatter Chart

**Polynomial Exponent**

Specifies the highest exponential value to use in the regression calculation.

**Applies to**
Regression Line
Appendix F: Report Studio Object and Property Reference

**Position**

Specifies where to position the legend.

**Applies to**

Legend

**Positive Column Color**

Specifies the color, gradient, or pattern to be used for columns in the progressive chart that represent positive values.

**Applies to**

Progressive Chart

**Pre-populate If Parent Optional**

Specifies whether to pre-populate the control with values, but only if the parent of this prompt control is optional. This only applies to prompt controls that have a parent in a cascade.

**Applies to**

Tree Prompt, Value Prompt

**Pre-populate Levels**

Specifies the number of levels to pre-populate the prompt with. The default value is 1, which will pre-populate the prompt with only the root members.

**Applies to**

Tree Prompt

**Pre-Sort**

Sorts the data that is used by the query to produce a temporary cube when needed, such as for a crosstab against a relational data source. This property affects the default order of members of a level populated from the data item.

**Applies to**

Data Item

**Processing**

Specifies whether the query engine will pick up a minimal amount of processing. Local processing only occurs if the database cannot handle the load.

**Applies to**

Query

**Progressive Axis**

Specifies whether the axis is rendered.

**Applies to**

Progressive Chart
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**Projection List**

Shows the list of projected data items for the set operation. You can automatically generate the list or manually add data items.

**Applies to**

Query Operation

**Properties**

Specifies a list of properties for an object.

**Applies to**

Axis Title, Baseline, Baseline, Baseline, Baseline, Chart Footer, Chart Node Member, Chart Subtitle, Chart Title, Crosstab Node Member, Cumulation Line, Legend Title, List, List Footer, List Header, Marker, Marker, Note Content, Page, Page Set, Regression Line, Repeater, Repeater Table, Total Column, Total Column Label

**Push To Bottom**

Specifies whether to position the footer as low as possible inside the parent object.

**Applies to**

List Footer, List Page Footer

**Query**

Specifies a reference to a query.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart, Axis Title, Baseline, Baseline, Baseline, Baseline, Bubble Chart, Chart Footer, Chart Subtitle, Chart Title, Combination Chart, Crosstab, Gauge Chart, Legend Title, List, Map, Marker, Marker, Metrics Range Chart, Note Content, Page, Page Set, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Repeater, Repeater Table, Scatter Chart, Select & Search Prompt, Tree Prompt, Value Prompt

**Radar Type**

Specifies how the radar chart is rendered.

**Applies to**

Radar Chart

**Radial Axis**

Specifies whether the axis is rendered.

**Applies to**

Polar Chart, Radar Chart

**Range**

Specifies whether this control accepts ranges. The setting of the associated parameterized expression for this property will override the setting of this object. If you edit this property but do not get the expected results, check the associated expression for the presence or absence of an in_range operator.
For example, if you created this prompt control with the prompt wizard and set up an associated parameterized filter that accepts ranges, changing the value of this property is not sufficient to change this restriction. You must also edit the filter’s expression and remove the in_range operator.

To edit a filter expression, you must select the filter, which is accessible from the Query view, using the Explorer bar.

**Applies to**
- Date & Time Prompt, Date Prompt, Interval Prompt, Text Box Prompt, Time Prompt, Value Prompt

**Range Label**

Specifies whether the label for the Target Range will appear in the legend.

**Applies to**
- Metrics Range Chart

**Regression Line**

Specifies whether a regression line is rendered.

**Applies to**
- Bubble Chart, Scatter Chart

**Regression Type**

Specifies the type of regression used.

**Applies to**
- Regression Line

**Relative Alignment**

Specifies how to vertically align this object, relative to its siblings.

**Applies to**
- 3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Class, Combination Chart, Crosstab, Date Prompt, Field Set, Gauge Chart, Hyperlink, Hyperlink Button, Image, List, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater Table, Scatter Chart, Table, Text Box Prompt, Text Item, Value Prompt

**Render Variable**

Specifies a variable based on which the object can be conditionally rendered.

**Applies to**
- 3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Combination Chart, Crosstab, Date & Time Prompt, Date Prompt, Field Set, Gauge Chart, Generated Prompt, HTML Item, Hyperlink, Hyperlink Button, Image, Interval Prompt, List, List Column, Map, Metrics Range Chart, Page, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Repeater, Repeater Table, Repeater Table Cell, Rich Text Item, Scatter Chart, Select & Search Prompt, Table, Text Box Prompt, Text Item, Time Prompt, Tree Prompt, Value Prompt
**Repeater Direction**

Specifies the direction in which to populate the rendered repeater cells.

**Applies to**

Repeater Table

**Report Expression**

Specifies the report expression that defines the text to render.

**Applies to**

Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Cumulation Line Label, Hyperlink, Hyperlink Button, List Cell, List Column Body, List Column Title, Text Item, Total Column

**Report Expression**

Specifies the report expression used to define the HTML to render.

**Applies to**

Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, HTML Item, List Cell, List Column Body, List Column Title, Rich Text Item

**Report Expression**

Specifies the report expression that defines the URL.

**Applies to**

Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Hyperlink, Hyperlink Button, Image, List Cell, List Column Body, List Column Title

**Report Expression**

Specifies the report expression that defines the bookmark. The value used as the bookmark reference must match this value.

**Applies to**

Bookmark, Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, List Cell, List Column Body, List Column Title

**Report Expression**

Specifies the numeric position by using a report expression.

**Applies to**

Baseline, Baseline, Baseline, Baseline, Marker

**Report Expression**

Specifies the report expression for the member position.
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**Report Expression**

Specifies a report expression.

**Applies to**

Baseline, Marker

**Report Expression**

Specifies the expression to evaluate when determining the value for this variable.

**Applies to**

As of Time Expression

**Report Expression**

Specifies the numeric position from a report expression.

**Applies to**

Variable

**Required**

Specifies whether the prompt is required or optional. If this property is set to required, the prompt must have a value entered before the report can be run. The setting of the associated parameterized filter for this property will override the setting of this object. If you edit this property, but do not get the unexpected results, check the setting of the associated filter for the Required property.

For example, if you created this prompt control with the prompt wizard and set the associated parameterized filter to be optional, changing the value of this property is not sufficient to change this setting. You must also edit the filter's Required property to match the setting for this object's Required property.

To edit a filter expression, you must select the filter, which is accessible from the Query view, using the Explorer bar.

**Applies to**

Date & Time Prompt, Date Prompt, Generated Prompt, Interval Prompt, Select & Search Prompt, Text Box Prompt, Time Prompt, Tree Prompt, Value Prompt

**Right Position (px)**

Specifies the pixel position of the right edge of the legend.

**Applies to**

Legend

**Rollup Aggregate Function**

Specifies the type of aggregation to apply to summarized values. These values appear at the higher levels of lists and crosstabs.
Applies to

Angular Measure, Baseline, Baseline, Baseline, Baseline, Bubble Measure, Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Cumulation Line Label, Data Item, Default Measure, HTML Item, Image, List Cell, List Column Body, List Column Title, Map Location, Map Location, Map Refinement Location, Map Refinement Location, Marker, Point Measure, Point Size Measure, Radial Measure, Region Measure, Rich Text Item, Target Measure, Text Item, Tolerance Measure, Total Column, X Axis Measure, Y Axis Measure, Z Axis Measure

Rollup Processing

Specifies where to compute aggregates. The Extended setting means that aggregates are computed using an extended aggregate operation. The Database setting means that aggregates are computed by the database software. The Local setting means that aggregates are computed by the data retrieval software in the report server, using a running aggregate.

Applies to

Query

Rotate Labels

Controls whether or not labels are rotated with the chart. May help make labels easier to read on rotated charts.

Applies to

Combination Chart, Pareto Chart, Progressive Chart

Row Intersection

Uniquely identifies the row of a node member or spacer on an edge of the crosstab. You cannot modify this value.

Applies to

Crosstab Intersection, Crosstab Member Fact Cells

Rows Per Page

Specifies the maximum number of rows to show at one time.

Applies to

Crosstab, List, Repeater, Select & Search Prompt, Tree Prompt, Value Prompt

Scale

Specifies whether the numeric scale is logarithmic or linear.

Applies to

Angular Axis, Cumulation Line Axis, Gauge Numerical Axis, Numerical Axis, Numerical Axis, Radial Axis, X Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

Scale Interval

Specifies the interval between ticks on the numeric scale. This value must be greater than zero. If no value is specified, one will be calculated based on the data.
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**Scope**

Specifies the scope of the filter in terms of the number of levels.

**Applies to**

Summary Filter

**Selector**

Specifies the class name in the report specification. We recommend that you do not modify this name.

**Applies to**

Class

**Select UI**

Specifies which interface the prompt control renders.

**Applies to**

Date & Time Prompt, Date Prompt, Time Prompt, Value Prompt

**Separator**

Specifies a separator to use when showing legend entries.

**Applies to**

Legend

**Series Color**

Specifies whether the graphs for a series will have the same color for each combination measure.

**Applies to**

3-D Combination Chart, Combination Chart, Metrics Range Chart

**Set Operation**

Specifies the set operation to apply to one or more queries, that results in a projection list on which other queries can be based.

**Applies to**

Query Operation
Show Caption

Specifies whether, or where, to show the caption.

Applies to
Field Set

Show Data Range in Legend

Specifies whether to show the full range of data in the legend. If set to No, only the values from the palette will be shown.

Applies to
Point Layer, Region Layer

Show Features with No Data

Indicates whether to show the features of a map that do not have corresponding data.

Applies to
Point Layer, Region Layer

Show Feelers

Specifies whether feeler lines are rendered for each marker.

Applies to
3-D Scatter Chart

Show Legend Values

Specifies whether and how to show legend values.

Applies to
Legend

Size & Overflow

Specifies the height and width of the object, as well as the treatment of page overflow, using scroll bars and clipping.

Applies to
3-D Combination Chart, 3-D Scatter Chart, Block, Bubble Chart, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Field Set, Gauge Chart, Hyperlink, Hyperlink Button, Image, List, List Cell, List Column, List Column Body, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map, Metrics Range Chart, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Repeater Table, Repeater Table Cell, Scatter Chart, Table, Table Cell, Text Box Prompt, Text Item, Tree Prompt, Value Prompt
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**Size Legend Title**

Specifies a title within the legend above the palette for the point size. If this object is not defined, no additional title is drawn. If no legend is drawn, this object is ignored. Styling for this object is inherited from the legend title.

**Applies to**

Point Layer

**Solve Order**

Specifies the solve order in crosstabs and charts. The item with the lowest solve order value is calculated first, followed by the next lowest value, and so on. For identical values, in crosstabs, column items are calculated first, then row items, and then the measure. In charts, x-axis items are calculated first and then legend items.

**Applies to**

Angular Measure, Bubble Measure, Chart Node Member, Crosstab Node Member, Default Measure, Point Measure, Point Size Measure, Radial Measure, Region Measure, Target Measure, Tolerance Measure, X Axis Measure, Y Axis Measure, Z Axis Measure

**Sorting**

Specifies the desired sort sequence.

**Applies to**

Chart Node Member, Crosstab Node Member, Level, Select & Search Prompt, Tree Prompt, Value Prompt

**Source Type**

Specifies the source type of the text.

**Applies to**

Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Cumulation Line Label, Hyperlink, Hyperlink Button, List Cell, List Column Body, List Column Title, Text Item

**Source Type**

Specifies the source type of the HTML text.

**Applies to**

Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, HTML Item, List Cell, List Column Body, List Column Title, Rich Text Item

**Source Type**

Specifies the source type of the URL.

**Applies to**

Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Hyperlink, Hyperlink Button, Image, List Cell, List Column Body, List Column Title
**Source Type**

Specifies the source type of the bookmark.

**Applies to**

Bookmark, Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, List Cell, List Column Body, List Column Title

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**Source Type**

Specifies the source type for the numeric position.

**Applies to**

Baseline, Baseline, Baseline, Baseline, Marker

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**Source Type**

Specifies the type of numeric position.

**Applies to**

Marker

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**Source Type**

Specifies a type of numeric position.

**Applies to**

Marker

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**Spacing & Breaking**

Specifies text properties such as line height, letter spacing, and word breaking.

**Applies to**

Block, Class, Conditional Block, Conditional Block, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Hyperlink, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Page Body, Page Footer, Page Header, Repeater Table Cell, Table Cell, Text Item

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**Spider Effects**

Specifies whether the chart is rendered with spider effects.

**Applies to**

Polar Chart, Radar Chart

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**SQL**

The text of the typed-in SQL. It is assumed to be appropriate for the type and data source. If it is not the query may fail, or produce unexpected results.

**Applies to**

SQL
Appendix F: Report Studio Object and Property Reference

**SQL Syntax**

Specifies the syntax of the SQL in the query. A value of Cognos indicates that Cognos extended SQL-92 syntax is used. Alternatively, a value of Native indicates that native database SQL is used.

**Applies to**

SQL

**Standard Deviations**

Specifies a distance from the mean in standard deviations. This value can be positive or negative. A value of zero indicates the mean value.

**Applies to**

Baseline, Baseline, Baseline, Baseline, Marker, Marker

**Static Choices**

Represents a collection of static choices used by the prompt object.

**Applies to**

Select & Search Prompt, Value Prompt

**Style Variable**

Specifies a variable based on which the object can be conditionally styled.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart, Angular Axis, Angular Measure, Axis Title, Block, Bubble Chart, Bubble Measure, Caption, Chart Body, Chart Footer, Chart Subtitle, Chart Text Item, Chart Title, Combination Chart, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Cumulation Line Axis, Date & Time Prompt, Date Prompt, Default Measure, Display Layer, Field Set, Gauge Chart, Gauge Labels, Gauge Numerical Axis, Hyperlink, Hyperlink Button, Image, Interval Prompt, Legend, Legend Title, List, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Map, Map Location, Map Location, Map Location, Map Refinement Location, Map Refinement Location, Metrics Range Chart, Note, Note Content, Numerical Axis, Numerical Axis, Ordinal Axis, Page, Page Body, Page Footer, Page Header, Pareto Chart, Pie Chart, Pie Labels, Point Layer, Point Measure, Point Size Measure, Polar Chart, Progressive Chart, Prompt Button, Radar Chart, Radial Axis, Radial Measure, Region Layer, Region Measure, Repeater Table, Repeater Table Cell, Scatter Chart, Select & Search Prompt, Table, Table Cell, Table Row, Target Measure, Text Box Prompt, Text Item, Time Prompt, Tolerance Measure, Tree Prompt, Value Prompt, X Axis, X Axis, X Axis Measure, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Y Axis Measure, Z Axis, Z Axis, Z Axis Measure

**Subtitle**

Specifies whether a chart subtitle is rendered.

**Applies to**

3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Gauge Chart, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart
Suppress

Specifies the type of suppression to apply to the query results. This property overrides the corresponding governor in the model. If unspecified, the value of the governor in the model is used.

**Applies to**

Query

Table Properties

Specifies the properties for the table object.

**Applies to**

Class, Crosstab, List, Repeater Table, Table

Target Color

Specifies a color for the vertical lines that mark the target ranges for target measure values in a metrics chart.

**Applies to**

Metrics Range Chart

Target Marker

Specifies whether the status indicators will appear in the legend.

**Applies to**

Metrics Range Chart

Target Marker Border Color

Specifies a color for the borders around target value markers in a metrics chart.

**Applies to**

Metrics Range Chart

Target Marker Position

Specifies whether the status indicators will be rendered over the first bar in the cluster or the middle of the cluster. Does not apply to stacked charts.

**Applies to**

Metrics Range Chart

Target Range (%)

Specifies target ranges centered around target measure values.

**Applies to**

Metrics Range Chart

Text

Specifies the static text to render.
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**Applies to**
Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Cumulation Line Label, Hyperlink, Hyperlink Button, List Cell, List Column Body, List Column Title, Text Item, Total Column

**Text Flow & Justification**
Specifies text flow properties, such as direction, writing mode, and justification.

**Applies to**
Block, Class, Conditional Block, Conditional Block, Crosstab, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, Hyperlink, List, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Page, Page Body, Page Footer, Page Header, Repeater Table, Repeater Table Cell, Table, Table Cell, Text Item

**Text Source Variable**
Specifies a variable based on which the text source can be chosen.

**Applies to**
Chart Node Member, Chart Text Item, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Cumulation Line Label, Hyperlink, Hyperlink Button, List Cell, List Column Body, List Column Title, Text Item

**Title**
Specifies whether a chart title is rendered.

**Applies to**
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Gauge Chart, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

**Tolerance Color**
Specifies a color for the vertical lines that mark the tolerance ranges for target measure values in a metrics chart.

**Applies to**
Metrics Range Chart

**Tolerance Label**
Specifies whether the label for the Target Tolerance will appear in the legend.

**Applies to**
Metrics Range Chart

**Tooltips**
Specifies whether tooltips are rendered in the chart. Tooltips are not supported in PDF documents.
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Applies to
3-D Combination Chart, 3-D Scatter Chart, Bubble Chart, Combination Chart, Gauge Chart, Map, Metrics Range Chart, Pareto Chart, Pie Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Top Position (px)
Specifies the pixel position of the top edge of the legend.

Applies to
Legend

Total Column
Specifies whether a total column is rendered.

Applies to
Progressive Chart

Total Column Color
Represents the color, gradient, or pattern of the total column on the progressive chart.

Applies to
Total Column

Truncation
Specifies whether labels can be truncated.

Applies to
Gauge Labels, Ordinal Axis, Pie Labels, X Axis, Y Axis

Truncation Text
Specifies the text to append when a label is truncated.

Applies to
Gauge Labels, Legend, Ordinal Axis, Pie Labels, X Axis, Y Axis

Type
Specifies the type of variable.

Applies to
Variable

Type
Specifies the behavior of the prompt control.

Applies to
Prompt Button
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**Upper Range Skew (%)**

Specifies a percentage that affects the positioning of tolerance bar and range with respect to the target value.

**Applies to**

Metrics Range Chart

**URL**

Specifies the URL, using static text.

**Applies to**

Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Hyperlink, Hyperlink Button, Image, List Cell, List Column Body, List Column Title

**URL Source Variable**

Specifies a variable based on which the URL source can be chosen.

**Applies to**

Chart Node Member, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Space, Hyperlink, Hyperlink Button, Image, List Cell, List Column Body, List Column Title

**Usage**

Specifies whether the usage of this object is Optional, Required, or Disabled. When Optional, this condition applies if all parameters referenced by the expression are provided with values. If the expression does not refer to any parameters, then this condition is always applied. When Disabled, this condition is never applied, which is useful for authoring and testing purposes.

**Applies to**

Detail Filter, Summary Filter

**Use Local Cache**

Specifies whether a query is a candidate for query reuse. If set to Yes, the query engine can reuse an existing SQL result. If set to No, the query is executed rather than using cached results.

**Applies to**

Query

**Use Same Range For All Instances**

Specifies that all instances of the chart use the same maximum value. When set to No, the axis maximum value is recalculated for each chart instance. It is only relevant if the chart is involved in a master detail relationship.

**Applies to**

Angular Axis, Cumulation Line Axis, Gauge Numerical Axis, Numerical Axis, Numerical Axis, Radial Axis, X Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis
Use SQL With Clause

Specifies whether to send a request to the database using an SQL WITH clause. When set to Yes, and if the database supports WITH clauses, a WITH clause request is generated. When set to No, or if the database does not support WITH clauses, a request using derived tables is generated.

**Applies to**
- Query

Use Thousands Separator

Specifies whether to delimit digit groups with the thousands separator.

**Applies to**
- Text Box Prompt

Use Value

Specifies the values used by the prompt object.

**Applies to**
- Tree Prompt

Use Value

Specifies the values used by the prompt object. These values can be different than the ones that are rendered to the user.

**Applies to**
- Select & Search Prompt, Value Prompt

Value Location

Specifies where values and labels are to be rendered in the chart.

**Applies to**
- Area, Bar, Bubble Chart, Combination Chart, Cumulation Line, Line, Metrics Range Chart, Pareto Chart, Polar Chart, Progressive Chart, Radar Chart, Scatter Chart

Value Representation

Specifies whether values are rendered as percentages.

**Applies to**
- Pie Chart

Values

Specifies what values to show in the chart and whether to show the corresponding measure, series, or category label.

**Applies to**
- 3-D Scatter Chart, Bubble Chart, Polar Chart, Scatter Chart
Values

Specifies whether values are rendered in the chart.

Applies to

3-D Area, 3-D Bar, 3-D Line, Area, Bar, Cumulation Line, Line, Pareto Chart, Point Layer, Progressive Chart, Radar Chart, Region Layer

Values

Specifies whether values are rendered.

Applies to

Pie Chart

Value Type

Specifies whether absolute values are rendered rather than cumulative values.

Applies to

Area, Bar, Line

Vertical Alignment

Specifies how objects contained in this object are vertically aligned.

Applies to

Class, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns, Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Page Body, Page Footer, Page Header, Repeater Table Cell, Table Cell, Table Row

Visible

Specifies whether to display the object. When set to No, the object is hidden but its space is reserved in the report.

Applies to

3-D Combination Chart, 3-D Scatter Chart, Angular Axis, Axis Title, Block, Bubble Chart, Chart Footer, Chart Subtitle, Chart Title, Class, Combination Chart, Conditional Block, Conditional Block, Crosstab, Cumulation Line Axis, Date & Time Prompt, Date Prompt, Field Set, Gauge Chart, Gauge Labels, Gauge Numerical Axis, Hyperlink, Image, Interval Prompt, Legend, Legend Title, List, Map, Metrics Range Chart, Note Content, Numerical Axis, Numerical Axis, Ordinal Axis, Pareto Chart, Pie Chart, Pie Labels, Polar Chart, Progressive Chart, Radar Chart, Radial Axis, Repeater Table, Scatter Chart, Select & Search Prompt, Table, Text Box Prompt, Text Item, Time Prompt, Tree Prompt, Value Prompt, X Axis, X Axis, Y Axis, Y Axis, Y Axis 1, Y Axis 2, Z Axis, Z Axis

Visual Angle

Specifies the angle, in degrees, in which the chart objects will be displayed when the chart has 3-D effects.

Applies to

Combination Chart, Metrics Range Chart, Pareto Chart, Progressive Chart
White Space

Specifies how white space inside the object is handled.

**Applies to**
Block, Class, Conditional Block, Conditional Block, Crosstab Columns, Crosstab Columns, Crosstab Corner, Crosstab Fact Cells, Crosstab Intersection, Crosstab Member Fact Cells, Crosstab Node Member, Crosstab Rows, Crosstab Rows, Crosstab Space, List Cell, List Column, List Column Body, List Columns, List Columns, List Columns Body Style, List Columns Title Style, List Column Title, List Footer, List Header, List Row, List Row Cells Style, Page Body, Page Footer, Page Header, Repeater Table Cell, Table Cell

Width (px)

Specifies the width of the note, in pixels.

**Applies to**
Note

X Axis

Specifies whether the axis is rendered.

**Applies to**
3-D Combination Chart

Y1 Axis

Specifies whether the axis is rendered.

**Applies to**
Combination Chart, Metrics Range Chart

Y2 Axis

Specifies whether the axis is rendered.

**Applies to**
Combination Chart

Y2 Axis Position

Specifies how the second Y axis is rendered.

**Applies to**
Combination Chart

Y Axis

Specifies whether the axis is rendered.

**Applies to**
3-D Combination Chart
Data Formatting Properties

The following is a list of properties available in the data formatting dialog.

"Not Applicable" Characters

Specifies the characters to be displayed when the value to be formatted was not applicable. If no value is entered for this property, an empty string will be displayed. Note that the format will be applied only if the data source supports this error condition.

Any Error Characters

Specifies the characters to be displayed when the value to be formatted was not available because of an error. This property is overridden by the more specific formatting error conditions, such as Security Error Characters. The default value is #!Error. Note that the format will be applied only if the data source supports this error condition.

Calendar Type

Specifies the type of calendar to be displayed. The date values will be mapped to the selected calendar before being formatted. The default value is inherited from the user's content language. Note that the Japanese Imperial setting is only applicable for Japanese languages.

Clock

Specifies whether to display the time in 12-hour or 24-hour format. The default value is inherited from the user's content language.

Currency

Specifies the currency to be used. The default currency symbol will be displayed unless the values of the Currency Display and Currency Symbol properties are changed. The default value is inherited from the model.

Currency Display

Specifies whether to display the international or local currency symbol. By default, the local currency symbol is displayed.

Currency Symbol

Specifies a character or characters to use as the symbol to identify the local currency. This symbol will precede the number and any sign, even if it is a leading sign. A space between the symbol and the numeric value can be specified by entering it in this property, after the symbol. The default value is inherited from the user’s content language.

Currency Symbol Position

Specifies where the currency symbol will appear. If End is selected, any spaces that follow the character or characters in the Currency Symbol or International Currency Symbol properties will be rendered between the number and the symbol. The default value is inherited from the user's content language.

Date Ordering

Specifies the order in which to display the day, month, and year. The default value is inherited from the user's content language.
**Date Separator**

Specifies the character to be displayed between the year, month, and day. The default value is inherited from the user's content language.

**Date Style**

Specifies the date style. The results rendered are determined by the language. Generally, Short uses only numbers, Medium uses some abbreviated words, Long uses complete words, and Full includes all available details.

**Decimal Separator**

Specifies the character that will separate non-decimal numbers from decimals. This property is ignored if no decimals are displayed. The default value is inherited from the user's content language.

**Display AM / PM Symbols**

Specifies whether to display the AM or PM symbols. The default value is inherited from the user's content language.

**Display As Exponent**

Specifies whether to render values in scientific notations, using exponents. If this property is set to No, no scientific notations will be used. If it is not specified, scientific notations will be used only when values exceed the maximum number of digits. The default value is inherited from the user's content language.

**Display Days**

Specifies whether to display the day. The format of the day can be controlled by selecting one of the specific formats. Selecting Julian means that the 3-digit day of the year will be displayed. The default value is inherited from the user's content language.

**Display Eras**

Specifies whether to display the era. The default value is inherited from the user's content language.

**Display Hours**

Specifies whether to display the hours. The default value is inherited from the user's content language.

**Display Milliseconds**

Specifies whether to display the milliseconds. The format of the milliseconds can be controlled by selecting one of the specific formats. This property is ignored if seconds are not displayed. The default value is inherited from the user's content language.

**Display Minutes**

Specifies whether to display the minutes. The format of the minutes can be controlled by selecting one of the specific formats. The default value is inherited from the user's content language.
Display Months

Specifies whether to display the month. The format of the month can be controlled by selecting one of the specific formats. The default value is inherited from the user's content language.

Display Months

Specifies whether to display the month.

Display Seconds

Specifies whether to display the seconds. The format of the seconds can be controlled by selecting one of the specific formats. The default value is inherited from the user's content language.

Display Time Zone

Specifies whether to display the time zone. The default value is inherited from the user's content language.

Display Weekdays

Specifies whether to display the weekday. The format of the weekday can be controlled by selecting one of the specific formats. The default value is inherited from the user's content language.

Display Years

Specifies whether to display the year. The first two digits of the year, which indicate the century, can be controlled by selecting one of the associated property values. The default value is inherited from the user's content language.

Display Years

Specifies whether to display the year.

Divide By Zero Characters

Specifies the characters to be displayed when a numeric value is the result of a division by zero. The default value is /0. Note that the format will be applied only if the data source supports this error condition.

Exponent Symbol

Specifies the character to be displayed to identify exponents if the scientific notation is used. The symbol will be rendered after the number, separated by a space. The default value is inherited from the user's content language.

Group Size (digits)

Specifies the primary grouping size. If a value is specified it represents the number of digits to the left of the decimal point to be grouped together and separated by the thousands separator. The default value is inherited from the user's content language.
International Currency Symbol

Specifies a character or characters to use as a symbol to identify the international currency. This symbol will replace the currency symbol. A space between the symbol and the numeric value can be specified by entering it in this property, after the symbol. The default value is inherited from the user's content language.

Mantissa (digits)

Specifies the number of digits to be displayed following the exponent symbol if the scientific notation is used.

Maximum No. of Digits

Specifies the maximum number of digits that can be displayed. If the maximum number of digits is not sufficient to display the value, a scientific notation will be used. The default value is inherited from the user's content language.

Minimum No. of Digits

Specifies the minimum number of digits that can be displayed. If the minimum number of digits is too high to display a value, the padding character will be used. The default value is inherited from the user's content language.

Missing Value Characters

Specifies the character or characters to be displayed when the value is missing. If no value is entered for this property, an empty string will be displayed.

Negative Pattern

Specifies a presentation format, based on patterns, for negative numbers. Some restrictions exist. The numerical part of the negative pattern is ignored. Only the suffix and the prefix are used. For example, in the pattern ABC#,##0.#EFG, ABC is the prefix, EFG is the suffix and #,##0.# is the numerical part of the pattern.

Negative Sign Position

Specifies where the negative sign will appear. The default value is inherited from the user's content language.

Negative Sign Symbol

Specifies how to display negative numbers. The default value is inherited from the user's content language.

No. of Decimal Places

Specifies the number of digits to be displayed to the right of the decimal point. If this property is not set, the number of decimal places will vary depending on the number rendered.

Numeric Overflow Characters

Specifies the characters to be displayed when a numeric value is the result of a numeric overflow. The default value is #!Overflow. Note that the format will be applied only if the data source supports this error condition.
Padding Character

Specifies the character that will be used to pad values that have fewer digits than the minimum number of digits. The default value is inherited from the user’s content language.

Pattern

Specifies a presentation format that is based on patterns.

Percentage Symbol

Specifies whether to display the values per hundred (percent) or per thousand. The symbol will be appended to the number and any trailing sign. A space between the numeric value and the symbol can be specified by entering it in this property, after the symbol. The default value is inherited from the user’s content language.

Percent Scale (integer)

Scale to be applied to value after formatting. If omitted, no percent scale will be applied and the value will formatted according the normal decimal positioning associated with the percent (or per mille) symbol.

Scale

Specifies how many digits to move the decimal delimiter for formatting purposes. For example, move the decimal three spaces to present values in thousands. The default value is inherited from the database field.

Secondary Group Size (digits)

Specifies the secondary grouping size. If a value is specified it represents the number of digits to the left of the primary group that will be grouped together and separated by the thousands separator. If this property is left blank, the secondary grouping of digits is the same number as the primary group size, as specified by the Group Size (digits) property. The default value is inherited from the user’s content language.

Security Error Characters

Specifies the characters to be displayed when the value to be formatted was not available for security reasons. The default value is #1Security. Note that the format will be applied only if the data source supports this error condition.

Thousands Separator

Specifies how to delimit digit groups, such as thousands. This property is only used if the Use Thousands Separator property is set to Yes. The default value is inherited from the user’s content language.

Time Separator

Specifies the character to be displayed between the hour, minute, and second. The default value is inherited from the user’s content language.

Time Style

Specifies the time style to be displayed. The exact results that will be rendered are determined by the language. Generally, Short means that the minimum details will be displayed, Long adds seconds, and Full means that all details are displayed, including the time zone. The default value is inherited from the user’s content language.
**Time Unit**

Specifies the unit of measure of the value. This property will be ignored if any day or time components are shown. The default value is inherited from the user's content language.

**Use Thousands Separator**

Specifies whether the grouping delimiter will be applied as defined by the Group Size property. The default value is inherited from the user's content language.

**Zero Value Characters**

Specifies the character or characters to be displayed when the value is zero (0). If no value is entered for this property, the Maximum No. of Digits property determines how many zero digits are displayed.
Appendix G: Using Patterns to Format Data

You can format data so that it matches any pattern of text and numbers when default formats are not appropriate. For example, you can format dates to use full text including the era, or you can format them to only use numbers and show the last two digits of years to save space.

Using symbols and patterns can provide similar results as basic data formatting tasks. For example, you can set how many digits appear after the decimal point. You can achieve these types of results with a pattern, or you can set the No. of Decimal Places property. Patterns allow flexibility for more complex requirements.

Each supported content language code requires a specific set of symbols to be used in patterns. For each language code, there are two tables you will need; one for date and time symbols, and one for decimal symbols. The decimal symbols are the same for all locales, however, date and time symbols are grouped into six locale groups. Check the Date and Time Symbol section to see which locale group is used for your locale.

To define patterns, open the Data Format dialog box, and edit the Pattern property for each format type. Use the symbols that are defined in the language code tables, and follow these guidelines.

Pattern Guidelines

When you define a pattern, the number of symbols you use affects how the data will be shown. There are different rules for text, numbers, and values that can take the form of text or numbers.

Text
You can specify whether text is produced in full or abbreviated form.

<table>
<thead>
<tr>
<th>Number of symbols</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 or more</td>
<td>Full text form</td>
<td>EEEE produces Monday</td>
</tr>
<tr>
<td>Less than 4</td>
<td>Abbreviated</td>
<td>EEE produces Mon</td>
</tr>
</tbody>
</table>

Numbers
The number of symbols you use in a pattern sets the minimum number of digits that are produced in a report. Numbers that have fewer digits than specified are zero-padded. For example, if you specify mm for minutes, and the database value is 6, the report will show 06.

Note: The year value is handled differently. If you specify two symbols for year, the last two digits of the year value is produced. For example, yyyy produces 1997, and yy produces 97.

Text and Numbers
For values that can produce text or numbers, such as months, you can specify whether text or numbers are produced, and whether words are abbreviated.

<table>
<thead>
<tr>
<th>Number of symbols</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 or more</td>
<td>Text</td>
<td>MMMMM produces January</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MMM produces Jan</td>
</tr>
</tbody>
</table>
### Date and Time Symbols

<table>
<thead>
<tr>
<th>Locale ID</th>
<th>Locale group</th>
</tr>
</thead>
<tbody>
<tr>
<td>af-za,</td>
<td>Locale Group A</td>
</tr>
<tr>
<td></td>
<td>Locale Group C</td>
</tr>
<tr>
<td></td>
<td>Locale Group D</td>
</tr>
<tr>
<td></td>
<td>Locale Group E</td>
</tr>
<tr>
<td></td>
<td>Locale Group F</td>
</tr>
</tbody>
</table>
## Locale Group A

Locales: af-za, en, en-au, en-be, en-bw, en-ca, en-gb, en-hk, en-ie, en-in, en-mt, en-nz, en-ph, en-sg, en-us, en-vi, en-za, fo-fo, gl-es, id, id-id, is, is-is, it, it-ch, it-it, kk-kz, ms, ms-bn, ms-my, nb-no, nl, nl-be, nl-nl, no, no-no, om-et, om-so, pl, pl-pl, pt, pt-br, pt-pt, so-dj, so-et, so-ke, so-so, sv, sv-fi, sv-se, sw-ke, sw-tz

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Symbol</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Era</td>
<td>G</td>
<td>Text</td>
<td>AD</td>
</tr>
<tr>
<td>Year</td>
<td>y</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Year (of 'Week of Year')</td>
<td>Y</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Month in year</td>
<td>M</td>
<td>Text and number</td>
<td>July and 07</td>
</tr>
<tr>
<td>Week in year</td>
<td>w</td>
<td>Number</td>
<td>27</td>
</tr>
<tr>
<td>Week in month</td>
<td>W</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in year</td>
<td>D</td>
<td>Number</td>
<td>189</td>
</tr>
<tr>
<td>Day in month</td>
<td>d</td>
<td>Number</td>
<td>10</td>
</tr>
<tr>
<td>Day of week in month</td>
<td>F</td>
<td>Number</td>
<td>2 (2nd Wed in July)</td>
</tr>
<tr>
<td>Day of Week (1=first day)</td>
<td>e</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in week</td>
<td>E</td>
<td>Text</td>
<td>Tuesday</td>
</tr>
<tr>
<td>a.m. or p.m. marker</td>
<td>a</td>
<td>Text</td>
<td>pm</td>
</tr>
<tr>
<td>Hour in day (1 to 24)</td>
<td>k</td>
<td>Number</td>
<td>24</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (0 to 11)</td>
<td>K</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (1 to 12)</td>
<td>h</td>
<td>Number</td>
<td>12</td>
</tr>
<tr>
<td>Hour in day (0 to 23)</td>
<td>H</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Minute in hour</td>
<td>m</td>
<td>Number</td>
<td>30</td>
</tr>
<tr>
<td>Second in minute</td>
<td>s</td>
<td>Number</td>
<td>55</td>
</tr>
<tr>
<td>Millisecond</td>
<td>S</td>
<td>Number</td>
<td>978</td>
</tr>
<tr>
<td>Time zone</td>
<td>z</td>
<td>Text</td>
<td>Pacific Standard Time</td>
</tr>
<tr>
<td>Escape used in text</td>
<td>'</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Single quote</td>
<td>&quot;</td>
<td>n/a</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
### Locale Group B

Locales: be-by, bg-bg, el, el-gr, fi, fi-fi, hr, hr-hr, hu, hu-hu, ja, ja-jp, ko, ko-kr, ro, ro-ro, ru, ru-ua, ru-ru, sh-yu, sk, sk-sk, sl-si, sq-al, sr-sp, th, tr, tr-tr, uk-ua, zh, zh-cn, zh-hk, zh-mo, zh-sg, zh-tw

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Symbol</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Era</td>
<td>G</td>
<td>Text</td>
<td>AD</td>
</tr>
<tr>
<td>Year</td>
<td>a</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Year (of 'Week of Year')</td>
<td>A</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Month in year</td>
<td>n</td>
<td>Text and number</td>
<td>July and 07</td>
</tr>
<tr>
<td>Week in year</td>
<td>w</td>
<td>Number</td>
<td>27</td>
</tr>
<tr>
<td>Week in month</td>
<td>W</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in year</td>
<td>D</td>
<td>Number</td>
<td>189</td>
</tr>
<tr>
<td>Day in month</td>
<td>j</td>
<td>Number</td>
<td>10</td>
</tr>
<tr>
<td>Day of week in month</td>
<td>F</td>
<td>Number</td>
<td>2 (2nd Wed in July)</td>
</tr>
<tr>
<td>Day of Week (1=first day)</td>
<td>e</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in week</td>
<td>E</td>
<td>Text</td>
<td>Tuesday</td>
</tr>
<tr>
<td>a.m. or p.m. marker</td>
<td>x</td>
<td>Text</td>
<td>pm</td>
</tr>
<tr>
<td>Hour in day (1 to 24)</td>
<td>h</td>
<td>Number</td>
<td>24</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (0 to 11)</td>
<td>K</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (1 to 12)</td>
<td>k</td>
<td>Number</td>
<td>12</td>
</tr>
<tr>
<td>Hour in day (0 to 23)</td>
<td>H</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Minute in hour</td>
<td>m</td>
<td>Number</td>
<td>30</td>
</tr>
<tr>
<td>Second in minute</td>
<td>s</td>
<td>Number</td>
<td>55</td>
</tr>
<tr>
<td>Millisecond</td>
<td>S</td>
<td>Number</td>
<td>978</td>
</tr>
<tr>
<td>Time zone</td>
<td>z</td>
<td>Text</td>
<td>Pacific Standard Time</td>
</tr>
<tr>
<td>Escape used in text</td>
<td>'</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Single quote</td>
<td>&quot;</td>
<td>n/a</td>
<td>'</td>
</tr>
</tbody>
</table>
## Locale Group C


<table>
<thead>
<tr>
<th>Meaning</th>
<th>Symbol</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Era</td>
<td>G</td>
<td>Text</td>
<td>AD</td>
</tr>
<tr>
<td>Year</td>
<td>u</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Year (of 'Week of Year')</td>
<td>U</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Month in year</td>
<td>M</td>
<td>Text and number</td>
<td>July and 07</td>
</tr>
<tr>
<td>Week in year</td>
<td>w</td>
<td>Number</td>
<td>27</td>
</tr>
<tr>
<td>Week in month</td>
<td>W</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in year</td>
<td>D</td>
<td>Number</td>
<td>189</td>
</tr>
<tr>
<td>Day in month</td>
<td>t</td>
<td>Number</td>
<td>10</td>
</tr>
<tr>
<td>Day of week in month</td>
<td>F</td>
<td>Number</td>
<td>2 (2nd Wed in July)</td>
</tr>
<tr>
<td>Day of Week (1=first day)</td>
<td>e</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in week</td>
<td>E</td>
<td>Text</td>
<td>Tuesday</td>
</tr>
<tr>
<td>a.m. or p.m. marker</td>
<td>a</td>
<td>Text</td>
<td>pm</td>
</tr>
<tr>
<td>Hour in day (1 to 24)</td>
<td>h</td>
<td>Number</td>
<td>24</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (0 to 11)</td>
<td>K</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (1 to 12)</td>
<td>k</td>
<td>Number</td>
<td>12</td>
</tr>
<tr>
<td>Hour in day (0 to 23)</td>
<td>H</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Minute in hour</td>
<td>m</td>
<td>Number</td>
<td>30</td>
</tr>
<tr>
<td>Second in minute</td>
<td>s</td>
<td>Number</td>
<td>55</td>
</tr>
<tr>
<td>Millisecond</td>
<td>S</td>
<td>Number</td>
<td>978</td>
</tr>
<tr>
<td>Time zone</td>
<td>z</td>
<td>Text</td>
<td>Pacific Standard Time</td>
</tr>
<tr>
<td>Escape used in text</td>
<td>'</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Single quote</td>
<td>&quot;</td>
<td>n/a</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
### Locale Group D
Locales: de, de-at, de-be, de-ch, de-de, de-lu

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Symbol</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Era</td>
<td>G</td>
<td>Text</td>
<td>AD</td>
</tr>
<tr>
<td>Year</td>
<td>j</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Year (of 'Week of Year')</td>
<td>J</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Month in year</td>
<td>M</td>
<td>Text and number</td>
<td>July and 07</td>
</tr>
<tr>
<td>Week in year</td>
<td>w</td>
<td>Number</td>
<td>27</td>
</tr>
<tr>
<td>Week in month</td>
<td>W</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in year</td>
<td>D</td>
<td>Number</td>
<td>189</td>
</tr>
<tr>
<td>Day in month</td>
<td>t</td>
<td>Number</td>
<td>10</td>
</tr>
<tr>
<td>Day of week in month</td>
<td>F</td>
<td>Number</td>
<td>2 (2nd Wed in July)</td>
</tr>
<tr>
<td>Day of Week (1=first day)</td>
<td>e</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in week</td>
<td>E</td>
<td>Text</td>
<td>Tuesday</td>
</tr>
<tr>
<td>a.m. or p.m. marker</td>
<td>a</td>
<td>Text</td>
<td>pm</td>
</tr>
<tr>
<td>Hour in day (1 to 24)</td>
<td>h</td>
<td>Number</td>
<td>24</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (0 to 11)</td>
<td>K</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (1 to 12)</td>
<td>k</td>
<td>Number</td>
<td>12</td>
</tr>
<tr>
<td>Hour in day (0 to 23)</td>
<td>H</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Minute in hour</td>
<td>m</td>
<td>Number</td>
<td>30</td>
</tr>
<tr>
<td>Second in minute</td>
<td>s</td>
<td>Number</td>
<td>55</td>
</tr>
<tr>
<td>Millisecond</td>
<td>S</td>
<td>Number</td>
<td>978</td>
</tr>
<tr>
<td>Time zone</td>
<td>z</td>
<td>Text</td>
<td>Pacific Standard Time</td>
</tr>
<tr>
<td>Escape used in text</td>
<td>'</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Single quote</td>
<td>&quot;</td>
<td>n/a</td>
<td>'</td>
</tr>
</tbody>
</table>

### Locale Group E
Locales: fr, fr-be, fr-ca, fr-ch, fr-fr, fr-lu

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Symbol</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Era</td>
<td>G</td>
<td>Text</td>
<td>AD</td>
</tr>
</tbody>
</table>
### Appendix G: Using Patterns to Format Data

#### Locale Group F
Locales: ga-ie

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Symbol</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Era</td>
<td>R</td>
<td>Text</td>
<td>AD</td>
</tr>
<tr>
<td>Year</td>
<td>b</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Year (of 'Week of Year')</td>
<td>B</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Month in year</td>
<td>M</td>
<td>Text and number</td>
<td>July and 07</td>
</tr>
<tr>
<td>Week in year</td>
<td>w</td>
<td>Number</td>
<td>27</td>
</tr>
<tr>
<td>Week in month</td>
<td>W</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in year</td>
<td>D</td>
<td>Number</td>
<td>189</td>
</tr>
<tr>
<td>Day in month</td>
<td>j</td>
<td>Number</td>
<td>10</td>
</tr>
<tr>
<td>Day of week in month</td>
<td>F</td>
<td>Number</td>
<td>2 (2nd Wed in July)</td>
</tr>
<tr>
<td>Day of Week (1=first day)</td>
<td>e</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in week</td>
<td>E</td>
<td>Text</td>
<td>Tuesday</td>
</tr>
<tr>
<td>a.m. or p.m. marker</td>
<td>x</td>
<td>Text</td>
<td>pm</td>
</tr>
<tr>
<td>Hour in day (1 to 24)</td>
<td>h</td>
<td>Number</td>
<td>24</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (0 to 11)</td>
<td>K</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (1 to 12)</td>
<td>k</td>
<td>Number</td>
<td>12</td>
</tr>
<tr>
<td>Hour in day (0 to 23)</td>
<td>H</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Minute in hour</td>
<td>m</td>
<td>Number</td>
<td>30</td>
</tr>
<tr>
<td>Second in minute</td>
<td>s</td>
<td>Number</td>
<td>55</td>
</tr>
<tr>
<td>Millisecond</td>
<td>S</td>
<td>Number</td>
<td>978</td>
</tr>
<tr>
<td>Time zone</td>
<td>z</td>
<td>Text</td>
<td>Pacific Standard Time</td>
</tr>
<tr>
<td>Escape used in text</td>
<td>'</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Single quote</td>
<td>&quot;</td>
<td>n/a</td>
<td>'</td>
</tr>
</tbody>
</table>

#### User Guide

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Symbol</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>a</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Year (of 'Week of Year')</td>
<td>A</td>
<td>Number</td>
<td>1996</td>
</tr>
<tr>
<td>Month in year</td>
<td>M</td>
<td>Text and number</td>
<td>July and 07</td>
</tr>
<tr>
<td>Week in year</td>
<td>w</td>
<td>Number</td>
<td>27</td>
</tr>
<tr>
<td>Week in month</td>
<td>W</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in year</td>
<td>D</td>
<td>Number</td>
<td>189</td>
</tr>
<tr>
<td>Day in month</td>
<td>j</td>
<td>Number</td>
<td>10</td>
</tr>
<tr>
<td>Day of week in month</td>
<td>F</td>
<td>Number</td>
<td>2 (2nd Wed in July)</td>
</tr>
<tr>
<td>Day of Week (1=first day)</td>
<td>e</td>
<td>Number</td>
<td>2</td>
</tr>
<tr>
<td>Day in week</td>
<td>E</td>
<td>Text</td>
<td>Tuesday</td>
</tr>
<tr>
<td>a.m. or p.m. marker</td>
<td>x</td>
<td>Text</td>
<td>pm</td>
</tr>
<tr>
<td>Hour in day (1 to 24)</td>
<td>h</td>
<td>Number</td>
<td>24</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (0 to 11)</td>
<td>K</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Hour in a.m. or p.m. (1 to 12)</td>
<td>k</td>
<td>Number</td>
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</tr>
<tr>
<td>Hour in day (0 to 23)</td>
<td>H</td>
<td>Number</td>
<td>0</td>
</tr>
<tr>
<td>Minute in hour</td>
<td>m</td>
<td>Number</td>
<td>30</td>
</tr>
<tr>
<td>Second in minute</td>
<td>s</td>
<td>Number</td>
<td>55</td>
</tr>
<tr>
<td>Millisecond</td>
<td>S</td>
<td>Number</td>
<td>978</td>
</tr>
<tr>
<td>Time zone</td>
<td>z</td>
<td>Text</td>
<td>Pacific Standard Time</td>
</tr>
<tr>
<td>Escape used in text</td>
<td>'</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Single quote</td>
<td>&quot;</td>
<td>n/a</td>
<td>'</td>
</tr>
</tbody>
</table>
### Decimal Format Symbols

#### All locales

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>A digit that is shown even if the value is zero.</td>
</tr>
<tr>
<td>#</td>
<td>A digit that is suppressed if the value is zero.</td>
</tr>
<tr>
<td>.</td>
<td>A placeholder for decimal separator.</td>
</tr>
<tr>
<td>,</td>
<td>A placeholder for thousands grouping separator.</td>
</tr>
<tr>
<td>E</td>
<td>Separates mantissa and exponent for exponential formats.</td>
</tr>
<tr>
<td>;</td>
<td>Separates formats for positive numbers and formats for negative numbers.</td>
</tr>
<tr>
<td>-</td>
<td>The default negative prefix.</td>
</tr>
</tbody>
</table>
## Appendix G: Using Patterns to Format Data

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>Multiplied by 100, as percentage.</td>
</tr>
<tr>
<td>%‰</td>
<td>Multiplied by 1000, as per mille.</td>
</tr>
<tr>
<td>₳</td>
<td>The currency symbol. If this symbol is present in a pattern, the monetary decimal separator is used instead of the decimal separator.</td>
</tr>
<tr>
<td>₳₮</td>
<td>The international currency sign. It will be replaced by an international currency symbol. If it is present in a pattern, the monetary decimal separator is used instead of the decimal separator.</td>
</tr>
<tr>
<td>X</td>
<td>Other characters that can be used in the prefix or suffix.</td>
</tr>
<tr>
<td>'</td>
<td>Used to quote special characters in a prefix or suffix.</td>
</tr>
<tr>
<td>/u221E</td>
<td>Infinity symbol.</td>
</tr>
<tr>
<td>/uFFFD</td>
<td>Not a Number symbol.</td>
</tr>
</tbody>
</table>
Appendix H: Drilling Through from Cognos Series 7 to Cognos 8

You can set up drill-through access from Cognos Series7 MR1 to Cognos 8. Specifically, you can drill through from:
- Cognos PowerPlay Web
- Cognos Visualizer
- Third party cubes

Setting Up Drill-through Access from PowerPlay Web

You can drill through from PowerPlay Web to Cognos 8.
Setting up drill-through access from PowerPlay Web to Cognos 8 involves:
- configuring Cognos Series 7 for drill-through access to Cognos 8
- preparing the Transformer model and cube
- copying the search path of the folder that contains the target report
- enabling the cube for drill-through access to Cognos 8
- deciding which filters to create in the target report
- creating the target report
- disabling the Drill Through Assistant

Configure Cognos Series 7 for Cognos 8

Before you can set up drill-through access from PowerPlay Web to Cognos 8, you must configure Cognos Series 7 for Cognos 8.

Steps
1. If Configuration Manager is running, close it.
2. Open the cer3.ini file in a text editor.
   The file is located in the \bin directory where Cognos Series 7 is installed.
3. Scroll down to the [NGC] section and change the value for Drill_enable to 1.
4. Save the file.
5. Start Configuration Manager.
6. On the Start tab, click Open the current configuration.
7. In the Explorer pane, right-click the highest-level object and click Apply Selection.
8. Exit Configuration Manager.

Prepare the Transformer Model and Cube

Prepare the Transformer model and cube for drill-through access.
The Transformer model and cube must already exist. For information about creating models and cubes in Transformer, see Cognos Transformer Step-by-Step Transformer.

Steps
1. In PowerPlay Transformer, open the model you want.
2. In the PowerCubes window, right-click the cube you will use for drill-through access and click Properties.
3. On the Output tab, enter the location where you want to save the cube. Save the cube in another location or change its name to keep the original cube unchanged.
4. In the Drill Through tab, select the Allow drill through for this PowerCube check box.
5. Click Add.
6. Click the Files of type box and click All files (*.*)
7. In the File name box, type name of target report.crr. The name of the Cognos 8 target report must be identical to the name you type here.
8. Click Open.
9. Click OK.
10. From the Run menu, click Update Selected PowerCube.

Copy the Search Path

In Cognos Connection, copy the search path of the folder that contains the target report.

Steps
1. Click the Public Folders or My Folders link.
2. If you want to create a new folder, do the following:
   • Click the new folder button.
   • In the Name box, type the name of the folder and click Finish.
3. Click the set properties button for the folder.
4. Click the View the search path link.
5. Copy the search path to the clipboard and click Close.
You can now use the search path when enabling the cube for drill-through to Cognos 8.

Enable the Cube for Drill-through access to Cognos 8

Use PowerPlay Enterprise - Server Administration to enable the cube for drill-through access to Cognos 8.
You must have already prepared the Transformer model and cube, and copied the folder search path.

Steps
1. From the Insert menu, click Cube.
2. On the General tab, click the ellipsis points (...) next to the Cube source box and add the Transformer cube.
3. Click the Settings tab.
4. Expand the Drill Through folder.
5. Click the Cognos ReportNet box and click Enabled.
   Cognos ReportNet is the name of the previous version of Cognos 8.
6. In the Cognos ReportNet server box, type the URL to Cognos 8.
7. In the Cognos ReportNet folder box, paste the Cognos Connection folder search path from the clipboard.
8. Click OK.

Decide Which Filters to Create in the Target Report

Use the Drill Through Assistant to help you decide which parameterized filters to create in the target report.
The Drill Through Assistant is an administrative tool that you can use to see what parameters and values are being passed to a report when you drill through to the report. You need this information to correctly set up parameterized filters in the report.

**Steps**

1. In PowerPlay Enterprise - Server Administration, right-click the cube and click **Properties**.
2. On the **Settings** tab, expand the **Drill Through** folder.
3. Click the **Cognos ReportNet Assistance** box and click **Enabled**.
   
   Cognos ReportNet® is the name of the previous version of Cognos 8.
4. Click **OK**.
5. With the cube selected, from the **Tools** menu, click **Open with Browser**.
   
   The cube opens in PowerPlay Web Explorer, and the dimensions appear as hyperlinks.
6. Drill down in each dimension to the level you want to filter on when drilling through to Cognos 8.
7. Click the drill through button.
   
   The Assist Drill Through Web page appears.
   
   The **PowerPlay cube metadata** section lists the items in the cube that are available for drill-through access. The items you want to use for drill-through access must also exist in the package. Using these items, the Drill Through Assistant provides the parameterized filters in the **ReportNet filter expressions** section that you can create in the target report. When you create the target report, ensure that the names of the filters you add are identical to the parameter names listed in the Assist Drill Through Web page.
   
   **Tip:** For each parameterized filter listed, the Drill Through Assistant also provides parameter values so that report authors can see what values PowerPlay supplies.
8. After you finish viewing the Assist Drill Through Web page, click **Cancel** to return to PowerPlay.

**Create and Test the Target Report**

In Report Studio, create the target report that you want to drill through to.

Before you can create the target report, you must create and publish a Framework Manager model. The model must contain the cube metadata items listed in the Drill Through Assistant that you want to filter on, or contain items that are mapped to those metadata items.

**Steps**

2. Add the data items and other objects you want.
3. From the **Data** menu, click **Filters**.
4. Click the add button.
5. In the **Tabular Model Filter** dialog box, in the **Expression Definition** box, create the parameterized filter you want by typing the filter expression.
   
   The parameter name must be identical to one of the parameter names listed in the Assist Drill Through Web page.
6. Click **OK**.
7. In the **Usage** box, click **Optional**.
   
   If you do not make the filter optional, a prompt page appears when you drill through to the report.
8. Repeat steps 4 to 7 for other parameterized filters you want to add.
9. Save the report.
   
   The report name must match the target report name you typed in the Transformer model (p. 429).
10. In PowerPlay Web Explorer, click **OK** to run the target report and observe the effects of the drill-through parameter values on the report.
Appendix H: Drilling Through from Cognos Series 7 to Cognos 8

**Disable the Drill Through Assistant**

After you create the target report and test the drill-through access to ensure that you are getting the results you want, we recommend that you disable the Drill Through Assistant so that users cannot access it.

**Steps**
1. In PowerPlay Enterprise - Server Administration, right-click the cube and click Properties.
2. On the Settings tab, expand the Drill Through folder.
3. Click the Cognos ReportNet Assistance box and click Disabled.
4. Click OK.

**Setting Up Drill-through Access from Cognos Visualizer**

You can drill through from Visualizer to Cognos 8.

Setting up drill-through access from Cognos Visualizer to Cognos 8 involves
- configuring Cognos Visualizer for drill-through access to Cognos 8
- copying the search path of the folder that contains the target report
- specifying a Cognos 8 target report
- deciding which filters to create in the target report
- creating the target report
- disabling the Drill Through Assistant

**Configure Cognos Visualizer for Cognos 8**

Before you can set up drill-through access from Cognos Visualizer to Cognos 8, you must prepare Cognos Visualizer to accept Cognos 8-specific information.

If you previously set up drill-through access from PowerPlay Web to Cognos 8 (p. 429), Cognos Visualizer is already prepared.

**Steps**
1. If Configuration Manager is running, close it.
2. Open the cer3.ini file in a text editor.
   The file is located in the \bin directory where Cognos Series 7 is installed.
3. Scroll down to the [NGC] section and change the value for Drill_enable to 1.
4. Save the file.
5. Start Configuration Manager.
6. On the Start tab, click Open the current configuration.
7. In the Explorer pane, right-click the highest level object and click Apply Selection.
8. Exit Configuration Manager.

**Copy the Folder Search Path**

In Cognos Connection, copy the search path of the folder that contains the target report.

**Steps**
1. Click the Public Folders or My Folders link.
2. If you want to create a new folder, do the following:
   - Click the new folder button.
   - In the Name box, type the name of the folder and click Finish.
3. Click the set properties button for the folder.
4. Click the View the search path link.
5. Copy the search path to the clipboard and click Close.
   You will need the search path when specifying a Cognos 8 target report.

Specify a Cognos 8 Target Report

In Cognos Visualizer, specify the Cognos 8 target report that you want to drill through to.

Steps
1. Open the visualization you want.
2. From the File menu, click Properties.
3. On the Drill Through tab, click Add and then click Cognos ReportNet.
   Cognos ReportNet(R) is the name of the previous version of Cognos 8.
4. In the New Cognos ReportNet Target dialog box, specify the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report name</td>
<td>The name of the Cognos 8 target report.</td>
</tr>
<tr>
<td>Report folder search path</td>
<td>The search path of the folder containing the target report in Cognos Connection.</td>
</tr>
<tr>
<td>Label</td>
<td>The label that you want users to see in the Visualizer Drill Through window for the target report.</td>
</tr>
<tr>
<td>CRN Gateway URL</td>
<td>The URL to the Cognos 8 server.</td>
</tr>
</tbody>
</table>

5. Click OK.

Decide Which Filters to Create in the Target Report

Use the Drill Through Assistant to help you decide which parameterized filters to create in the target report.

The Drill Through Assistant is an administrative tool that you can use to see what parameters and values are being passed to a report when you drill through to the report. You need this information to correctly set up parameterized filters in the report.

Steps
1. Start Cognos Visualizer and open the visualization you want.
2. From the File menu, click Properties.
3. On the Drill Through tab, click the target report and then click Properties.
4. Select the Assist Drill Through check box and click OK twice.
5. Save the visualization.
6. Start Cognos Server Administration and click Visualizations.
   The Server Administration - Cognos Visualizer Web Edition window appears.
7. From the File menu, click Add Visualization.
8. Add the visualization you just saved.
9. For the visualization you added, click Client Processor, and then click Connect to Visualization.
   The visualization opens in Cognos Visualizer Web Edition.
10. Drill down in each dimension to the level you want to filter on when drilling through to Cognos 8.
11. From the Data menu, click Drill Through, and then click the target report label.
12. In the Drill Through Settings window, choose whether to drill through in a new browser window or in an existing window, and click OK.
The Assist Drill Through Web page appears. The Visualizer metadata section lists the items in the visualization that are available for drill-through access. The items you want to use for drill-through access must also exist in the package. Using these items, the Drill Through Assistant provides the parameterized filters in the ReportNet filter expressions section that you can create in the target report. When you create the target report, ensure that the names of the filters you add are identical to the parameter names listed in the Assist Drill Through Web page.

Tip: For each parameterized filter listed, the Drill Through Assistant also provides parameter values so that report authors can see what values Cognos Visualizer supplies.

13. After you finish viewing the Assist Drill Through Web page, click Cancel to return to Cognos Visualizer.

Create and Test the Target Report

In Report Studio, create the target report that you want to drill through to.

Before you can create the target report, you must create and publish a Framework Manager model. The model must contain the metadata items listed in the Drill Through Assistant that you want to filter on, or contain items that are mapped to those metadata items.

Steps
2. Add the data items and other objects you want.
3. From the Data menu, click Filters.
4. Click the add button.
5. In the Tabular Model Filter dialog box, in the Expression Definition box, create the parameterized filter you want by typing the filter expression.
   The parameter name must be identical to one of the parameter names listed in the Assist Drill Through Web page.
6. Click OK.
7. In the Usage box, click Optional.
   If you do not make the filter optional, a prompt page appears when you drill through to the report.
8. Repeat steps 4 to 7 for other parameterized filters you want to add.
9. Save the report.
10. In Cognos Visualizer, click OK to run the target report and observe the effects of the drill-through parameter values on the report.

Disable the Drill Through Assistant

After you create the target report and test the drill-through access to ensure you are getting the results you want, we recommend that you disable the Drill Through Assistant so that users cannot access it.

Steps
1. In Cognos Visualizer, open the visualization you want.
2. From the File menu, click Properties.
3. On the Drill Through tab, click the target report and then click Properties.
4. Clear the Assist Drill Through check box and click OK twice.

Setting Up Drill-through Access from Third-Party Cubes

You can drill through from third party cubes to Cognos 8.
Setting up drill-through access from a third-party cube to Cognos 8 involves
- configuring Cognos Series 7 for drill-through access to Cognos 8
- preparing the cube
- copying the search path of the folder that contains the target report
- enabling the cube for drill-through access to Cognos 8
- deciding which filters to create in the target report
- creating the target report
- disabling the Drill Through Assistant

**Configure Cognos Series 7 for Cognos 8**

Before you can set up drill-through access from PowerPlay Web to Cognos 8, you must configure Cognos Series 7 for Cognos 8.

**Steps**
1. If Configuration Manager is started, close it.
2. Open the cer3.ini file in a text editor.
   - The file is located in the \bin directory where Cognos Series 7 is installed.
3. Scroll down to the [NGC] section and change the value for Drill_enable to 1.
4. Save the file.
5. Start Configuration Manager.
6. On the Start tab, click Open the current configuration.
7. In the Explorer pane, right-click the highest-level object and click Apply Selection.
8. Exit Configuration Manager.

**Prepare the Cube**

Prepare the cube for drill-through access.

You must already have set up the cube using PowerPlay Connect. For more information, see the PowerPlay Connect online help.

**Steps**
1. Create a file and name it by typing name of target report.crr.
   - You can create the file using any application, such as Notepad.
   - The name of the Cognos 8 target report must be identical to the name you type here.
2. Start PowerPlay Connect.
3. From the Tools menu, click Drill-Through.
4. Click Add and add the file you previously created.
5. Click OK.
6. Save the cube.

**Copy the Folder Search Path**

In Cognos Connection, copy the search path of the folder that contains the target report.

**Steps**
1. Click the Public Folders or My Folders link.
2. If you want to create a new folder:
   - Click the new folder button.
   - In the Name box, type the name of the folder and click Finish.
3. Click the set properties button for the folder.
Appendix H: Drilling Through from Cognos Series 7 to Cognos 8

4. Click the View the search path link.
5. Copy the search path to the clipboard and click Close.
   You will need the search path when enabling the cube for drill-through to Cognos 8.

Enable the Cube for Drill-Through Access to Cognos 8

Use PowerPlay Enterprise - Server Administration to enable the cube for drill-through access to Cognos 8.
You must already have prepared the cube and copied the folder search path.

Steps
1. From the Insert menu, click Cube.
2. On the General tab, click the ellipsis button (...) next to the Cube source box and add the third party cube.
3. Click the Settings tab.
4. Expand the Drill Through folder.
5. Click the Cognos ReportNet box and click Enabled.

   Cognos ReportNet(R) is the name of the previous version of Cognos 8.
6. In the Cognos ReportNet server box, type the URL to Cognos 8.
7. In the Cognos ReportNet folder box, paste the Cognos Connection folder search path from the clipboard.
8. Click OK.

Decide Which Filters to Create in the Target Report

Use the Drill Through Assistant to help you decide which parameterized filters to create in the target report.

The Drill Through Assistant is an administrative tool that you can use to see what parameters and values are passed to a report when you drill through to the report. You need this information to correctly set up parameterized filters in the report.

Steps
1. In PowerPlay Enterprise - Server Administration, right-click the cube and click Properties.
2. On the Settings tab, expand the Drill Through folder.
3. Click the Cognos ReportNet Assistance box and click Enabled.

   Cognos ReportNet(R) is the name of the previous version of Cognos 8.
4. Click OK.
5. With the cube selected, from the Tools menu, click Open with Browser.
   The cube opens in PowerPlay Web Explorer, and the dimensions appear as hyperlinks.
6. Drill down in each dimension to the level you want to filter on when drilling through to Cognos 8.
7. Click the drill through button.
   The Assist Drill Through Web page appears.
   The PowerPlay cube metadata section lists the items in the cube that are available for drill-through access. The items you want to use for drill-through access must also exist in the package. Using these items, the Drill Through Assistant provides the parameterized filters in the ReportNet filter expressions section that you can create in the target report. When you create the target report, ensure that the names of the filters you add are identical to the parameter names listed in the Assist Drill Through Web page.
   Tip: For each parameterized filter listed, the Drill Through Assistant also provides parameter values so that report authors can see what values PowerPlay supplies.
8. After you finish viewing the Assist Drill Through Web page, click Cancel to return to PowerPlay.
Create and Test the Target Report

In Report Studio, create the target report that you want to drill through to.

Before you can create the target report, you must create and publish a Framework Manager model. The model must contain the cube metadata items listed in the Drill Through Assistant that you want to filter on, or contain items that are mapped to those metadata items.

**Steps**
2. Add the data items and other objects you want.
3. From the Data menu, click Filters.
4. Click the add button.
5. In the Tabular Model Filter dialog box, in the Expression Definition box, create the parameterized filter you want by typing the filter expression. The parameter name must be identical to one of the parameter names listed in the Assist Drill Through Web page.
6. Click OK.
7. In the Usage box, click Optional.
   If you do not make the filter optional, a prompt page appears when you drill through to the report.
8. Repeat steps 4 to 7 for other parameterized filters you want to add.
9. Save the report.
   The report name must match the name of the file you created when you prepared the cube (p. 435).
10. In PowerPlay Web Explorer, click OK to run the target report and observe the effects of the drill-through parameter values on the report.

Disable the Drill Through Assistant

After you create the target report and test the drill-through access to ensure you are getting the results you want, we recommend that you disable the Drill Through Assistant so that users cannot access it.

**Steps**
1. In PowerPlay Enterprise - Server Administration, right-click the cube and click Properties.
2. On the Settings tab, expand the Drill Through folder.
3. Click the Cognos ReportNet Assistance box and click Disabled.
   Cognos ReportNet (R) is the name of the previous version of Cognos 8.
4. Click OK.
**Glossary**

**burst**
To create many report results by running a single report once. For example, you can create a report that shows sales for each employee, and run it once, sending different results to regional managers by bursting on region.

You set up bursting in Report Studio and enable it in the portal.

**calculated member**
A member of a dimension whose measure values are not stored but are calculated at run time using an expression.

**cardinality**
For OLAP data sources, cardinality is the number of members in a hierarchy. The cardinality property for a hierarchy is used to assign solve orders to expressions.

For relational data sources, cardinality indicates the nature of the relationship between two query subjects, query items, or other model objects.

**cascading prompt**
A prompt that uses values from a previous prompt to filter the values in the current prompt or picklist.

**class style**
A combination of formatting characteristics, such as font, font size, and border, that you name and store as a set. When you apply a style, all of the formatting instructions in that style are applied at one time.

**condition**
An expression that yields a boolean value. Conditions are used in query expressions, query filters, and boolean report variables that can be used for conditional formatting, styles, data sources, layouts and blocks.

**Content Manager**
The Cognos 8 service that manages the storage of customer applications, including application-specific security, configuration data, models, metrics, reports, and report output. Content Manager is needed to publish models, retrieve or store report specifications, manage scheduling information, and manage the Cognos namespace.

**cube**
A physical data source containing a multidimensional representation of data. A cube contains information organized into dimensions and optimized to provide faster retrieval and navigation in reports.

**data source**
A relational database, dimensional cube, file, or other physical data store that can be accessed through Cognos 8.
**data tree**

Within a studio, contains objects such as query subjects, query items, dimensions, levels, and members. A data tree is used as a palette of the available data that can be inserted into calculations, filters, display areas, and other authoring gestures.

**dimension**

A broad grouping of descriptive data about a major aspect of a business, such as products, dates, or markets. Each dimension includes different levels of members in one or more hierarchies, and an optional set of calculated members.

**drill down**

The act of navigating from one level of data to a more detailed level. The levels are set by the structure of the data.

See also drill up.

**drill up**

The act of navigating from one level of data to a less detailed level. The levels are set by the structure of the data.

See also drill down.

**group**

In security, a list of users or other groups that can be used to assign access permissions and capabilities.

Groups can be referenced from third-party authentication sources or can be local to Cognos 8. Local groups are managed from the administration portal. The list of groups that an authentication user is a member of is part of the users passport for a Cognos 8 session.

In reporting, grouping is the action of organizing common values of query item together and only displaying the value once. Headers and footers often appear after each instance of a common value in a grouped column.

**hierarchy**

A hierarchy represents a collection of dimensional members organized into a tree structure, with each member having one or more parent members and an arbitrary number of child members.

The root of a hierarchy has no parent, and leaf members of a hierarchy have no children.

**layout**

In reporting, layout defines the appearance of the report, including formatting, style, and design.

In report specifications, layout is the portion of the specification that defines how the data returned by queries is presented.

**level**

A level is a set of members that have common attributes. For example, a geographical dimension might contain levels for country, region, and city. Levels are used to define the structure of hierarchies in a dimension.

**locale**

A code that is used to set the language or dialect used for browsers, report text, and so on; and the regional preferences, such as formats for time, date, money, money expressions, and time of day.

For Cognos products, you can specify a locale for the product interface (product locale) and for the data in the report (content locale).
MDX
An abbreviation for multidimensional expression language, MDX is the multidimensional equivalent of SQL. Cognos 8 allows report authors to type in their queries using MDX expressions in Report Studio for dimensional data sources.

measure
A performance indicator that is quantifiable and used to determine how well a business is operating. For most business purposes the aggregate values of a measure are more useful than individual values. For example, measures can be Revenue, Revenue/Employee, and Profit Margin %. In relational modeling, this is also called a "fact."

member
A member is a unique item within a level. For example, Camping Equipment and Golf Equipment are members of the Product Line level.

See also member unique name.

Metric Studio application
A set of metric types, metrics, and scorecards that monitor the performance of an organization. Each organization may have several Metric Studio applications monitoring distinct units, such as operating companies or divisions that have different user communities, metric types or reporting calendars.

model
A physical or business representation of the structure of the data from one or more data sources. A model describes data objects, structure, and grouping, as well as relationships and security.

A model, called a design model, is created and maintained in Framework Manager. The design model or a subset of the design model must be published to the Cognos 8 server as a package for users to create and run reports.

package
A subset of a model, which can be the whole model, to be made available to the Cognos 8 server.

page set
A set of pages associated with a specified group or level that indicates the page set is to be repeated for that group or level. For example, render a specified set of pages for each customer in the query.

prompt
A report element that asks for parameter values before the report is run.

properties pane
Within a studio, the properties pane provides an overview of the properties for selected data. You can also use the properties pane to make several changes and apply them at the same time, instead of repeating several different commands.

query
A specification for a set of data to retrieve from a data source. A report specification can contain one or more queries.

The type of object created and edited by Query Studio. A query is a subtype of report.

query item
A representation of a column of data in a data source. It contains a reference to a database column, a reference to another query item, or a calculation. Query items may appear in a model or in a report.
**query subject**
One of the types of objects inside a model. A query subject can be defined as a collection of references to items of other query subjects, or expressed as an SQL expression that represents selected query items. These query items will be retrieved from objects such as tables, synonyms, views, and so on. Query subjects contain query items.

**repeater**
In Report Studio, a cell container that repeats values within itself with no predefined internal structure.

**repeater table**
In Report Studio, a table-like container that repeats cells across and down the page for row in the associated query.

**report**
A set of data deliberately laid out to communicate business information. Depending on the context, "report" may refer to report specification or report output.

Report (more precisely, report specification) is the generic term for the objects created by edited by Query Studio, Report Studio, and Analysis Studio.

**report output**
A report output combines data at the point in time when the report was run with a report specification. It is a document that can be displayed, printed or emailed. Cognos 8 can produce report outputs in HTML, PDF, Excel, or CSV formats.

**report specification**
The definition of queries, prompts, layouts, and styles that make up a report. A report specification is combined with data by a run operation to create report outputs. You create report specifications by using Report Studio, Query Studio, Analysis Studio, or through the Software Development Kit.

**style sheet**
A file that defines the formatting and appearance of data or a document. In XML, style sheets may be extensible style sheet language (XSL) files or extensible style sheet language transformation (XSLT) files.

In HTML, style sheets are cascading style sheet (CSS) files.

XSL and CSS style sheets can be embedded inside any XML document or referenced as an external, separate file.

**summary**
In reporting and analysis, summaries are aggregate values that are calculated for all the values of a particular level or dimension. Examples of summaries include total, minimum, maximum, average, and count.

**template**
A reusable report layout or style that can be used to set the presentation of a query or report.

**work area**
The area within a studio that contains the report, analysis, query or agent currently being used.

**XML**
A language that uses markup symbols or tags to create descriptions of the structure of data. The XML standard is defined by the World Wide Web Consortium (W3C), and is related to HTML and SGML. Unlike HTML, XML is extensible because the tags aren't predefined or limited.
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