COGNOS(R) 8 BUSINESS INTELLIGENCE

COGNOS®

THE NEXT LEVEL OF PERFORMANCE™

Product Information

This document applies to Cognos^(R) 8 Version 8.1 and may also apply to subsequent releases. To check for newer versions of this document, visit the Cognos support Web site (http://support.cognos.com).

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Table of Contents

Introduction

This document includes step-by-step procedures and background information to help you explore and analyze data.

Cognos Analysis Studio is a Web-based product for exploring, analyzing, and comparing dimensional data.

If you have experience working with PowerPlay in Cognos Series 7, see .

To use this document, you should have

- experience using a Web browser
- knowledge of business analysis concepts
- knowledge of your business requirements

For a tutorial designed to help you learn basic Analysis Studio skills, see the Analysis Studio Quick Tour.

For more information about using this product, visit the Cognos support Web site (http://support.cognos.com).

You can:

- find product environment and language support
- view additional product documentation and white papers
- access the Knowledge Base
- suggest enhancements or submit problems

For information about education and training, click the **Training** link from this site.

The following documents contain related information, and may be referred to in this document. Note that the availability of the studios described in these documents depends on your licensing permissions. To change your licensing permissions, see your administrator.

Document	Description
Cognos 8 Getting Started	Teaching new users how to use Cognos 8
Report Studio User Guide	Authoring reports that analyze corporate data according to specific needs
Query Studio User Guide	Creating ad hoc business intelligence reports
Cognos Connection User Guide	Using Cognos Connection to publish, find, manage, organize, and view Cognos content, such as scorecards, reports, analyses, and agents
Cognos 8 Troubleshooting Guide	Helping administrators to quickly identify and solve problems

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.

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 support 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.

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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: Analysis Studio

Use the interactive drag-and-drop environment in Analysis Studio to explore and analyze your data to find answers to business questions.

Using Analysis Studio, you can

- quickly drill into details (p. 27)
- compare data, such as details to summaries, or actual results to budgeted results (p. 16)
- assess performance by focusing on the best or worst results (p. 34)
- establish relative importance using calculations such as growth or rank (p. 41)
- share your findings with others (p. 47)

Analysis Studio is the component of Cognos 8 that you can use for multidimensional analysis and exploration of large data sources.

Cognos 8 is designed to help you report, monitor, and analyze your company's corporate performance quickly and easily. For an overview of the Cognos 8 components and how they work together, see Cognos 8 *Getting Started*.

Who Uses Analysis Studio?

Analysis Studio is not only for people with the word analyst in their job title, but for any business user who must understand and discover answers to business questions in company data. People who can use PowerPlay to support their decisions include

- regional managers who must assess performance
- manufacturing managers who must conduct defect analysis
- customer representatives who must understand their customer relationships

What is Exploration?

You can use Analysis Studio to quickly change how you view performance indicators, such as revenue or production costs.

OLAP (online analytical processing) exploration refers to the term slicing and dicing to describe the ease with which you can change context and view details. For example, you look at revenue for the years 2001 to 2005 by sales region. You notice a dip in the revenue for 2004. By clicking on 2004, you can drill down (p. 27) to show revenue results by quarters for 2004. You can easily change the view from quarters for 2004 to sales personnel by replacing quarters with sales personnel (p. 25).

To help you focus on the data that answers your business questions, Analysis Studio automatically maintains the context of your analysis so that you can focus on the results, not the tool. In the previous example, when you change the view from the quarters in 2004 to sales personnel, Analysis Studio retains 2004 as the context. For more information, see "Exploring Data" (p. 27).

What is Analysis?

You can use Analysis Studio to compare and manipulate data to understand the relationships between data and its relative importance. Whether you want to assess revenue growth or to identify top performers, Analysis Studio provides the filtering, calculating, and sorting support you need for analysis.

To extend the example of reviewing revenue by sales region and sales personnel, you can add sales targets and then calculate the percentage difference between the sales target and actual revenue for each salesperson. Because the top 10% performers are awarded a bonus, you can also rank the sales personnel across all regions using the percentile calculation. The result indicates who made their sales quota as well as who is eligible for a bonus.

Large Data Considerations

In the Cognos 8 suite, only Analysis Studio intelligently manages large data volumes to improve performance and to avoid overwhelming you with details. You can then focus on your analysis.

Analysis Studio helps you find meaningful details while keeping summaries in view to maintain a clear overview of your data. You can

- use **Search** in the data tree to find only the data you need (p. 16)
- keep crosstabs small by using top/bottom and other filters (p. 34)
- limit the number of visible items in the data tree (p. 16) or crosstab (p. 25)
- control the presentation of rolled up data by using subtotals (p. 39)

If you want to see all the data in a large set, you can click the run button on the toolbar to view the analysis as an HTML report (p. 48).

Sharing the Results

When you view an analysis by using Cognos Viewer, you produce a report that can be scheduled, viewed, or saved in HTML, PDF, or Excel format. Reports created by any studio in Cognos 8, including Analysis Studio, can be shared with other users using Cognos Connection. For more information, see the Cognos Connection *User Guide*.

You can also use Report Studio to extend the report definition to include other reporting elements, or enhance the report by defining bursting rules. For more information, see the Cognos Report Studio *User Guide*.

For more information about the formats you can use to share an analysis, as well as how to set report options such as titles and page breaks, see "Sharing Data" (p. 47).

The Analysis Studio Interface

The Analysis Studio window consists of three panes, a work area, and an overview area.

The Data Tree

The **Data** tab of the **Insertable Objects** pane contains the data tree for the package selected for the analysis.

The data tree presents a dimensional view of your data, organized into dimensions, hierarchies, levels, and measures.

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.

The **Measures** folder contains quantitative data, such as revenue or quantity.

By default, the maximum number of items shown in the data tree is 50. Your administrator may set a different value for optimum performance, depending on the size of the data source.

The following is an example of a data tree.
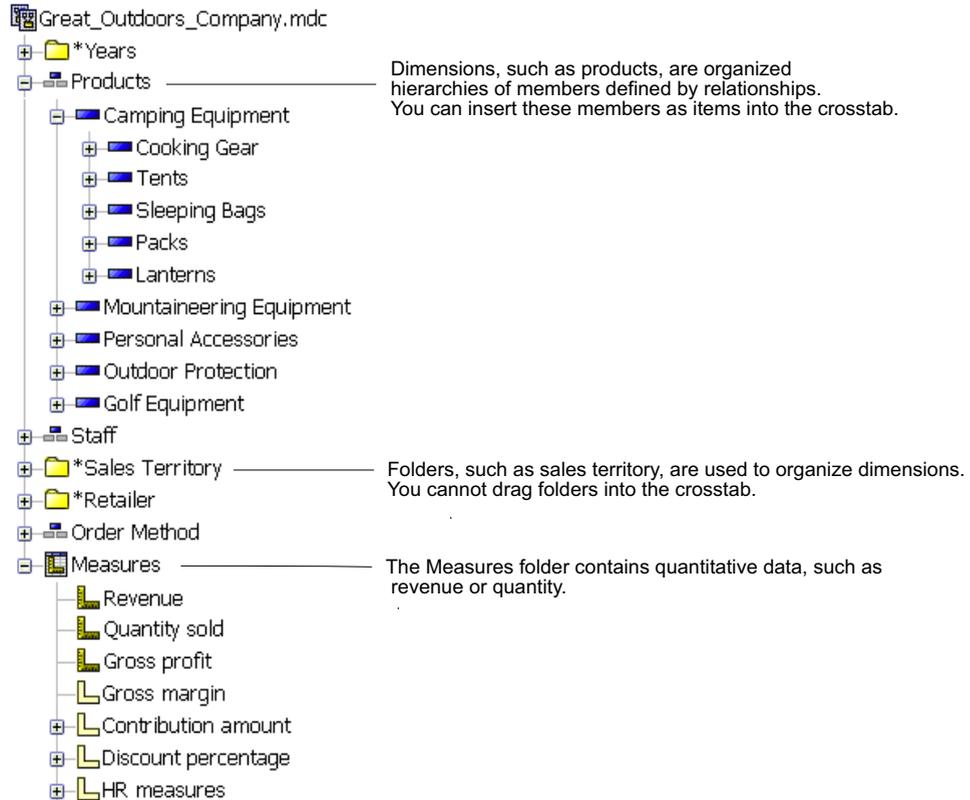
The Analysis Items Tab

The **Analysis Items** tab contains items created in the analysis, such as custom sets and named sets.

The Information Pane

The **Information** pane shows the name, leve , attributes (if any), and aggregation associated with the selected item in the data tree, as well as any additional information provided by the data modeler.

Possible aggregation types for measures are sum, count, count distinct, count nonzero, and none.

Possible aggregation types for other items are rollup and computed.

Tip: To open or close the **Information** pane, click the upward pointing or the downward pointing chevron on the right side of the pane.

You can also use the **Information** pane to insert a level into the crosstab.

Information – James Ross-Hythe ⚟
Name: James Ross-Hythe
Level: ⊞ Staff name
Aggregation: Rollup

The Properties Pane

The properties pane provides a comprehensive view of the crosstab or selected set in the work area.

You can also use the properties pane to make several changes and apply them at the same time, instead of running different commands. For example, you can

- specify the number of items to show (p. 25)
- create a user-defined filter (p. 35)
- sort data (p. 28)
- unhide data (p. 26)

If you select a set, the properties pane shows you the displayed properties, such as subtitles and the number of visible items, and undisplayed properties, such as filters and calculations, for that set. If you click elsewhere in the crosstab, the properties pane shows you the properties for that crosstab, such as the default measure (p. 16), links to rows and columns, any existing context, and selected report options.

Tip: To open or close the properties pane, do the following:

- Click the upward pointing chevron or the downward pointing chevron on the right side of the pane.

This shows how the open properties pane appears when you select a set and open the properties pane.

Order Method – Sort descending			⚟
Display:	Visible items (Default) ▾ ; No hidden items;		
	Subtotals (Total, More & hidden, Included, Excluded) ▾ ; Attributes (none) ▾		
Definition ▾			
Filter:	No top or bottom ▾ ; No expression✐; No excluded items		
Context:	None		

OK   Cancel   Apply
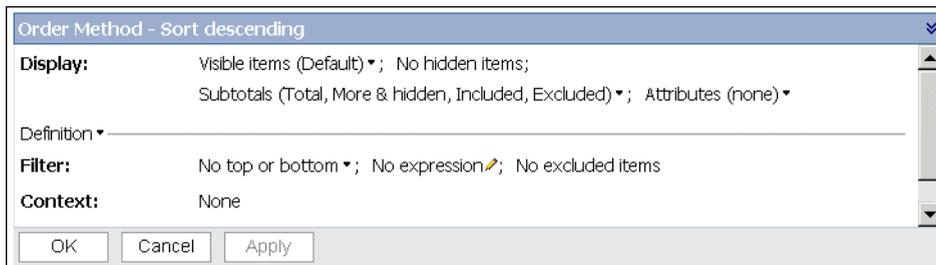
The Work Area

The work area contains the crosstabs and charts that you use to explore and analyze data. You can view data as

- a crosstab
- a chart
- a crosstab and a chart

 Tip: You can use the display button on the toolbar to show only the chart, only the crosstab, or both.

The Overview Area

You can use the overview area as a convenient place to quickly explore and change the contents of the work area.

The overview area shows any applied filters and sorting. You manipulate rows and columns, drill up or down (p. 27), and provide context for the work area (p. 33).

A set selected in either the crosstab or in the overview area is also selected in the other.

Rows and Columns

Each box in the **Rows** area and **Columns** area represents one or more sets in the crosstab. Stacked sets (p. 21) appear as a single box labeled **Combination**. A selection-based set (p. 21) appears as a box with (**list**) appended to the label.

Each box in the **Rows** area and **Columns** area also reflects the details shown in the work area. For example, when you change the number of visible items in the crosstab, the same number are shown in the **Rows** or **Columns** list.

You can also use the lists to drill up or down (p. 27).

Context

The context you specify applies as a whole to the work area. For example, you can drag **Sales Territory** from the **Insertable Objects** pane to the context area. When you click a specific territory from the list, the values in the crosstab change to represent data for that territory.

For information about using context as a filter, see "Filter Values Using Context" (p. 33).

Chapter 2: Creating a Basic Analysis

Create an analysis to help you make more effective business decisions by exploring significant company data.

You can also open an existing analysis to use as the basis of a new analysis.

Before you can create an analysis, the administrator must have created a package in Framework Manager and published it to a location in the Cognos Connection portal to which you have access.

To create an analysis, you must do the following:

- ❑ Select a package.
- ❑ Find the data you need.
- ❑ Insert data.
- ❑ Save the analysis.

For an example about creating a basic analysis, see "Example - Create a Crosstab for an Analysis of Order Method Revenue" (p. 20).

If you are already comfortable with the Analysis Studio fundamentals, you may want to refine your analysis by using tasks such as manipulating the rows and columns (p. 21), filtering data (p. 33), calculating data (p. 39), and sharing the results (p. 47).

Select a Package

If you create a new analysis, you must select a package to use as a source of data.

Depending on how your administrator configures the package, Analysis Studio presents either a designated default analysis or an empty crosstab.

Steps

1. In your Web browser, open Cognos Connection by typing the URL supplied by your administrator.

   Tip: Create a bookmark in your browser for quick access to Cognos Connection.

2. On the **Public Folders** tab, click the package that you want to use as a data source.

   No Entries means that there are no analyses created using this package.

3. Click the **Analysis Studio** link on the toolbar.

4. If the **Select a Package** page appears, click the package that you want.

   Analysis Studio starts. The items that you can use in the analysis are listed in the **Insertable Objects** pane.

Finding the Data That You Need

The data tree for the package that you select can contain large amounts of data. To find the data that you need in the data tree, you can

- expand a dimension to see successive levels and details
- specify a greater or lesser number of items to show in the data tree
- search for more items

The data tree shows 20 items for any one dimension at a time. You can change this value in the session to a maximum of 50.

If there are more than 20 items in the dimension, a **More** icon appears at the bottom of the list. Every time you click the **More** icon, an additional 20 items appears until you reach the maximum. Now the **More** icon is replaced by a **Search** icon. If you click this icon, you can enter your search criteria to find the data that interests you.

Search for Data in the Data Tree

By default, the maximum number of items shown in any single dimension in the data tree is 50. Your administrator may set a different value for optimum performance, depending on the size of the data source. If a level has more than 50 items, you can search for the data that you need.

Searching is limited to the immediate details of the selected item.

Steps

1. In the data tree, click the item that you want to search.
2. Click the search button on the toolbar.
   Tip: You can also right-click the selected icon, and then click **Search**.
3. Specify the search keywords.
   If necessary, specify a search option. The **Case insensitive** check box is unavailable if the data provider does not support case insensitive searching.
4. Click **Search**.
   Tip: To stop a search, click the **Stop** button.
5. Drag the items from the **Results** box to the crosstab.
   Tip: To use the results as a context filter, drag them to the context section of the overview area.

Specify the Number of Items Shown in the Data Tree

You can specify the number of items to show in the data tree for the current session to make it easier to use. The number of items retrieved is shown next to the name of the parent item.

In the data tree, the **Search** icon appears at the end of the list if more data exists than can be shown at once.

By default, the maximum number of items shown in the data tree is 50. Your administrator may set a different value for optimum performance, depending on the size of the data source.

Steps

1. Right-click an item in the data tree.
2. Click **Set Number of Items to Show**.
3. Specify the number to show and the scope options.
4. Click **OK**.
   Tip: To restore the maximum number of items to the default, repeat steps 1 to 2 and click **Reset to default limit to show**.

Insert Data

You insert items from the data tree as rows and columns in a crosstab to create sets of data for analysis. A set is a collection of like data. For example, you can have a set of data named years that includes quarters as details.

An analysis must have at least one set of items and at least one measure.

The default measure specifies the measure to use for a crosstab or chart if the measure is not set by one of the existing axes. For example, you create a crosstab with **Products** in the rows and **Quantity Sold** in the columns. You add **Revenue** to the **Measure** drop zone to make it the default measure, but the values in the rows do not change because they refer to the measure **Quantity Sold** in the column axis. However, if you replace the measure **Quantity Sold** with the non-measure **Order Method**, the values now refer to **Revenue** as the default measure.

Tip: To quickly change the default measure, right-click the cell in the upper left corner of the crosstab, click **Change Default Measure**, and choose a measure.

Notes

- When using a Cognos PowerCube 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.

- When you insert items from a relational data source containing sparse data, you may see the following error message:

  PCA-ERR-0017 Unable to find the child *name of missing member*.

  This error can occur when the underlying model does not use outer joins in the hierarchy definition. For more information, see the Framework Manager *User Guide*.

- When you insert items from a relational data source containing sparse data, you may see data in the analysis appear and disappear unexpectedly. For example, a crosstab may contain 10 members along the rows and 10 members along the columns. When you add a member from another dimension to the context area, some members may disappear along the row or column because they are not in scope for that particular context.

  This can also occur when using SAP BW data sources.

In addition to items from the data tree, you can insert the following into the crosstab:

- items retrieved in a search
- levels from the **Information** pane
- calculations

If you are interested in only the summarized results, you can insert data without details (p. 19).

You can also simultaneously insert all the items of a level (p. 19), insert adjacent sets of data (p. 24), or insert data from different levels of the same dimension (p. 18).

Other techniques for inserting data are nesting data (p. 23) and replacing data (p. 25).

For information about different crosstab layouts that you can use, see "Crosstab Layouts" (p. 23).

You cannot drag folders from the data tree.

Steps

1. In the data tree, click the item that you want to insert.
2. Drag the item to the desired location in the crosstab.

   A flashing black bar indicates where you can drop the item.

   A detail-based set appears in the crosstab.

   You can insert data as a selection-based set by pressing Shift+click or Ctrl+click to select multiple items in a dimension and then dragging them to the crosstab.

Save an Analysis

Save the analysis to preserve any changes.

For information about setting up folders in Cognos Connection for your work, see the Cognos Connection *User Guide*.

You can also save an analysis using a different name as the basis of a new analysis.

Steps

1. Click the save button on the toolbar.
2. If you are saving the analysis for the first time, specify where you want to save the analysis and type a file name.
3. Click **OK**.

Create an analysis to help you make more effective business decisions by exploring significant company data.

You can also open an existing analysis to use as the basis of a new analysis.

Save an Analysis as the Basis of a New Analysis

You can save an analysis using a different name or location to use it as the basis of a new analysis.

You can also save an analysis using the same name to preserve changes.

Steps

1. Click the save as button on the toolbar.
2. Specify a name and location.
3. Click **OK**.

Open an Existing Analysis

You can open an existing analysis to view the current data, make changes to it, or use it as the basis of a new analysis.

Steps

1. In your Web browser, open Cognos Connection by typing the URL supplied by your administrator.
2. Locate the name of the analysis that you want to open and click it.

   The analysis opens in Analysis Studio.

   Note: If an analysis is run and saved as an HTML report, the HTML icon appears next to the analysis link. When you click the link, the analysis runs as an HTML report. To open the analysis for editing, click the icon that opens the analysis in Analysis Studio.
3. View the data, using the scroll bars to see more rows or columns.

   Tip: To increase or decrease the available space, click the hide pane or show pane button in the upper-right corner of the **Insertable Objects** pane or resize the pane.
4. Make any changes that you want.
5. Save the analysis.

   If you want to use the analysis as the basis of a new analysis, save it using a different name.

   Tip: To open a new analysis while working in an existing analysis, click the new button on toolbar. The new analysis maintains the state of the data tree in the **Insertable Objects** pane and maintains any items on the **Analysis Items** tab.

Insert Data From Multiple Levels of a Dimension

Use selection-based sets to position one or more members from a dimension adjacent to each other in the crosstab for a mixed grain comparison.

For example, you can select items from a single dimension like this in the data tree.
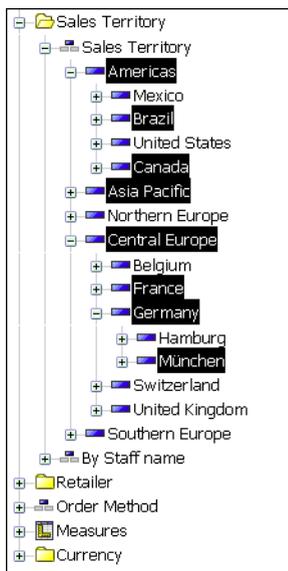
You can drag these items to the crosstab.

You can also nest data from the multiple levels of the same dimension (p. 23).

Steps

1. In the data tree, expand the dimension to locate the items that you want to insert.
2. Press Shift+click or Ctrl+click to select multiple items in a dimension and then drag them to the crosstab.

   A selection-based set appears in the crosstab.

Insert All the Items of a Level

You can simultaneously insert all the items of a level.

Levels define the way data is grouped in dimensions. For example, a geographical dimension in a data tree might contain levels for country, region, and city. You can click a single city and instantly insert every item that belongs to the city level into the crosstab.

Steps

1. In the data tree, click an item that belongs to the level that you want.
2. From the right-click menu, choose whether to
   - **Insert All Items***(name of item level)*
   - **Replace With All Items***(name of item level)*

   All the items of the same level appear in the crosstab.

   Tip: You can also drag the level icon from the **Information** pane (p. 12) to the location that you want in the work area.

Insert Data Without Details

If you are interested in only the summarized results, you can insert data without details.

You can also insert data with details (p. 16).

Steps

1. From the **Settings** menu, click **Insertion Options, Insert without details**.
2. Drag the item from the data tree to the desired location in the crosstab.

   Items added to the crosstab appear without details until you change the setting again

Tip: You can also right-click an item, drag the item to the desired location in the crosstab while keeping the right mouse button pressed, and click **Insert without Details** or **Replace without Details**.

Example - Create a Crosstab for an Analysis of Order Method Revenue

You are a business analyst at the Great Outdoors Company, which sells sporting equipment. You are asked to analyze the consequences of discontinuing the fax and mail order methods, which are expensive to process.

First you get the data you need and insert it into a crosstab for further analysis.

Before you can try this example, you must set up the sample packages that come with Cognos 8. For more information, see the Cognos 8 *Administration and Security Guide*.

Steps
1. In the Cognos Connection home page, click the **Public Folders** tab.
2. Click the **Great Outdoors Company** package.
3. Click the **Analysis Studio** link.

   Analysis Studio opens, and data from the **Great Outdoors Company** package appears in the data tree.
4. Drag **Revenue** from the **Measures** folder to the **Measure** area in the crosstab.
5. Drag **Retailer** from the **Retailer** folder to the **Columns** area in the crosstab.
6. Drag **Order Method** to the **Rows** area in the crosstab.
7. Click the save button on the toolbar.
8. In the **Name** box, type

   Order Methods Revenue
9. Leave the default destination folder as **Public Folders**, and click **OK**.

You now have data to compare and analyze. Next, you can see if revenues for these methods are growing or declining .

Revenue (measure)	Outdoors Shop	Sports Store	Direct Marketing	Department Store	Golf Shop	Ey
Fax	$3,661,544.04	$1,767,704.38	$510,957.16	$1,847,048.46	$993,375.60	
Telephone	$20,606,427.96	$8,441,259.70	$2,237,525.24	$7,018,173.96	$3,533,470.04	
Mail	$4,177,423.78	$1,593,118.38	$277,587.54	$1,518,692.22	$1,030,562.10	
E-mail	$13,704,188.36	$4,372,379.68	$1,048,218.12	$4,088,272.30	$2,156,498.10	
Web	$17,908,168.92	$6,198,271.82	$1,120,103.24	$6,439,502.68	$3,049,096.40	
Sales visit	$19,078,491.50	$6,121,570.16	$1,992,745.86	$7,003,909.72	$3,842,566.68	
Special	$1,417,303.06	$532,879.98	$289,620.72	$448,680.06	$394,799.24	
Order Method	$80,553,547.62	$29,027,184.10	$7,476,757.88	$28,364,279.40	$15,000,368.16	$

Chapter 3: Working With Data in the Crosstab

You can manipulate the way rows and columns appear in a crosstab for more effective comparison by

- nesting rows or columns (p. 23)
- swapping rows and columns (p. 25)
- limiting the details shown in a set (p. 25)
- showing or hiding rows or columns (p. 26)

Comparisons are key elements of nearly every business report. The following are different types of comparisons.

Comparison	Example
Simple comparison	Tents versus sleeping bags
Multiple comparison	Tents versus golf clubs, tees, and golf balls
Multidimensional comparison	Products versus territories, this year to date versus last year to date
Mixed grain comparison	Tents versus similar camping products, this year versus last year, and the last quarter versus last year
Summaries of measures at different levels	Tents as a share of camping products, as a share of European sales

Sets

Sets are the main building blocks of the crosstabs in Analysis Studio. A set is a collection of like data.

The following are the different kinds of sets you can use.

Set	Description
detail-based set	A collection of data based on a selected item and all its immediate details. For example, you can have a set of data named years that includes quarters as details.
Selection-based set	A collection of individual items that you have explicitly selected. The items or members may be selected from one or more levels from the same hierarchy.
	If the target set is a selection-based set and the selected data tree items are from the same hierarchy, then the selected items are appended to the end of the list when dragged into the crosstab.
level-based set	A set based on a single level. For more information, see "Insert All the Items of a Level" (p. 19).

Set	Description
stacked set	Also known as a union set. Two or more independent sets adjacent to each other in a crosstab. For rows, a new set is appended below or above the target set. For columns, the new set is appended left or right of the target set
measure set	Measure sets are comprised of one or more measures. In nested sets, measure sets may be placed on the inside of either the rows or the columns, but not both.
custom set	A collection of data defined in Analysis Studio that can be saved and reused in the same analysis. For more information, see "Create a Custom Set" (p. 36).
predefined set	A set of members defined inside an OLAP data source as a list or by an expression. Cognos 8 can use predefined sets in analysis and report authoring. A predefined set is also known as a named set in Microsoft SQL Server Analysis Services.

Select a Set, Row, or Column

You must select sets, rows, or columns before you can perform actions on them.

The actions you can perform depend on what you select.

Tip: To deselect, click anywhere in the work area outside the crosstab.

Undo and Redo the Last Action

You can use the undo and redo commands to correct mistakes or to experiment with different actions. Undo reverses the last unsaved action, up to ten steps.

Tip: Click the undo button on the toolbar.

If you decide you do not want to undo an action, click the redo button on the toolbar.

Goal	Action
To select a set	Click its box in the overview area, or click its label twice slowly, or click on its selector bar. An arrow appears when a selector bar is ready.
To select multiple rows or columns	Select their labels by pressing Shift+click or Ctrl+click.
To select a single row or column	Click its heading label. Do not click the label text when selecting an item because this initiates drilling down or up.
To select a single row and column	Click the intersecting cell of the row and column. Use this command to drill down on a single value.

Nest Rows or Columns

You can nest data in a crosstab to compare information by using more than one item in a column or row. For example, a crosstab shows the sales by product line for the past fiscal year. You can add an item to further break down the sales by order method.

Steps
1. In the data tree, click the item that you want to insert.
2. Drag the item to the location that you want in the rows or columns.

   A black bar indicates where you can drop the item.

   Tip: You can also nest rows and columns by right-clicking and using the shortcut menu.

Nest Data from the Same Dimension

You can expand and go down levels to nest data from a single dimension. Examples include nesting quarters in years, or nesting cities in countries.

The **Expand** command is available only when a dimension contains levels suitable for nesting.

Steps
1. Right-click the crosstab item that you want to nest and click **Expand**.
2. Click **Down a level** or **Up a level** to move through the different levels of the dimension.

Crosstab Layouts

You can choose the most practical layout for your analysis. The following layouts are available.

Layout	Description	Illustration
Basic	This layout contains one set of rows and one set of columns.	
Nested	This layout contains sets nested either along the rows, the columns, or both.	
Stacked	This layout contains two or more sets arranged one above another on the rows, side-by-side on the columns, or both.	
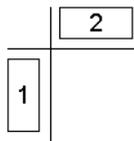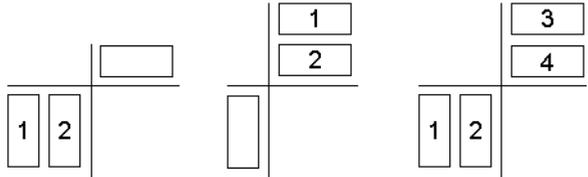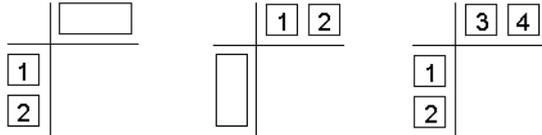
Layout	Description	Illustration
Asymmetric	This layout contains both nested and stacked sets. Many combinations are possible.	

Insert Sets of Data in Complex Layouts

Some crosstab layouts require more than a simple drag-and-drop operation when you want to insert sets of data, such as in asymmetrical crosstabs.

Nested Rows

Insert data above or below a selected set in nested rows. For example, select set 2, right-click the desired data in the data tree, and click **Insert, Below Selected Item** to create set 3.
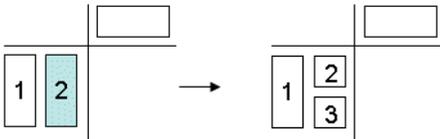
Nested Columns

This example uses nested columns. Select set 1 in the columns, right-click the desired data in the data tree, and click **Insert, After Selected Item** to create set 3.
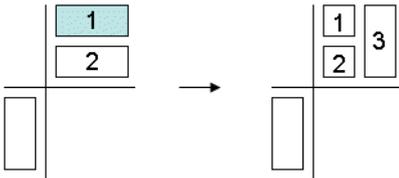
Stacked Sets

Insert data before or after a selected set in a stacked set. For example, select set 1, right-click the desired data in the data tree, and click **Insert, After Selected Item** to create set 3.
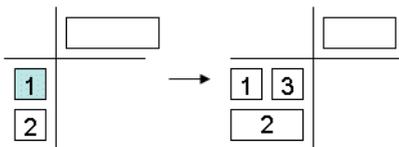
Selection-Based Sets

Replace a selection-based set with one or more items from the same hierarchy to create a new set instead of appending the selected items to the existing set.
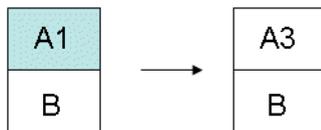
For more instructions, see "Example - Create an Asymmetrical Crosstab" (p. 51).

Steps

1. Select the target location in the crosstab.
2. In the data tree, right-click the item that you want to insert.
3. From the **Insert** menu, select the command that you need.

Replace Data

You can replace one set with another for comparison.

When you replace a filtered set, such as top 5 products, or a selection-based set, such as a set containing New York, France, and Asia Pacific, in the crosstab, Analysis Studio retains the context of the data to support your train of thought.

For example, you view your top 5 products. You drag **Customers** from the data tree to the crosstab to replace **Products** to see which customers purchased these products. The **Products** set is automatically moved to the **Context** section of the overview area, and **Customers** is shown in the crosstab. The values for **Customers** refer to the filtered **Products** set.

For information about replacing data in selection-based sets, see "Insert Sets of Data in Complex Layouts" (p. 24).

To replace a set, do the following:

*   In the data tree, drag an item to the set that you want to replace.

    Tip: Alternatively, you can right-click the item that you want to insert in the data tree and select a replacement option from the **Replace** menu.

Swap Rows and Columns

You can swap rows and columns to analyze your data differently. For example, the rows contain quarters of the fiscal year and the columns contain products. To track trends over time more easily, you can swap them so that the rows contain products and the columns contain quarters.

To swap rows and columns, do the following:

*   Click the swap rows and columns button on the toolbar.

    Tip: You can also use the overview area to swap individual rows and columns by dragging the row or column boxes from one area to the other.

Specify the Number of Details Shown in a Set

You can specify the number of rows or columns shown in a set to improve performance by reducing the data and to help you focus on the analysis by removing excessive details.

Your administrator specifies the default number and the maximum number of rows or columns shown in the crosstab.

To see all the data in a large set, you must click the run button on the toolbar and view the analysis as an HTML report (p. 48).

Steps

1. Select a set.
2. Right-click the selected set and click **Properties**.
3. In the **Display** section of the properties pane, click **Visible items**.

4. Click a number or click **Custom** and specify a number between 1 and 20.

   Tip: To restore the number of visible items to the default, repeat steps 1 to 3 and click **Default**

   Values for the rows or columns that exceed the specified number are rolled up into a row or column named **More**.

Hide a Row or Column

You can hide rows or columns you do not want to show in a crosstab. For example, you may want to hide rows that contribute marginal values to the total.

The values of hidden rows and columns are included in the **More & hidden** subtotal (p. 39), and are still included in the summary.

If you want to exclude the value from the **More & hidden** subtotal as well as hide the row or column from view, see "Exclude Items" (p. 34).

You cannot hide items in a selection-based set.

Steps

1. Right-click a row or column.
2. Click **Hide**.

   Tip: To show hidden data, click the **hidden** link, and click **Unhide***(name of hidden item)* or **Unhide All**.

   You can also hide or unhide items by using the **Properties** pane.

Show Attributes of an Item

You can show attributes of the items in a set in the item label to provide more detail about items in the crosstab.

You can also use the **Information** pane (p. 12) to see the attributes of an item.

You cannot show attributes when the set contains a single member. If you want to show the attributes of a single member set, you must add at least one more member to the analysis, show attributes, and then remove the unwanted members.

Steps

1. Select a set.
2. Right-click the set and click **Show Attributes**.
3. Click the attributes that you want to show in the item label.

   Tip: To view attributes in a selection-based set that contains multiple levels, click the level name. The attributes for all items at that level in the crosstab appear.

Chapter 4: Exploring Data

You can explore your data to look for significant comparisons and correlations.

Some ways of exploring data are

Drill Down and Drill Up

You can drill down and drill up to explore data by moving between levels of information.

Drill down to see more detail. For example, you can drill down to the lowest-level item to examine the impact of a single aspect of your business.

Drill up to compare results. For example, you can examine revenue for a single product and then drill up to see revenue for the entire product line for comparison.

To drill down or up in a single row or column, do the following:

- Pause the pointer over the label text until the icon with the plus sign (+) and caret appears and the text is underlined, and then click.

   Tip: The direction of the caret indicates whether you are drilling up or drilling down.

To drill down or up in both a row and column simultaneously, do the following:

- click the value at the intersection of the row and the column, and then click again.

Go to a Another Report or Package

You can go to frequently used target reports to help you validate or understand the results of your analysis. You can go to the following targets:

- an Analysis Studio analysis
- a Report Studio report
- a Query Studio report
- a Cognos Series 7 PowerCube action
- a Microsoft SQL Server Analysis Services (SSAS) action

Before you can go to another target, a drill-through definition must be created in the package. For more information, see the Cognos 8 *Administration and Security Guide*, or contact your administrator.

Steps

1. Select a row or column to use as the source.
2. Click the go to button on the toolbar.

   The **Go To** page opens.
3. Click the target you want to go to.

   The target appears in Cognos Viewer.

   Tip: To use an item in the **Context** section of the overview area as a filter when you go to another report or analysis, click **Use as "Go To" Parameter** in the item's drop-down menu.

Show Values as a Percentage

You can show values as a percentage or share of a crosstab total to quickly view the contribution of an item to the whole.

Percentage Values and Calculations

If the crosstab contains a user-defined arithmetic calculation, such as addition, subtraction, multiplication, or division, Analysis Studio computes the arithmetic calculation first, then applies the % of base calculation when you show values as a percentage. This is also true with exponentiation and rollup calculations.

If the crosstab contains a user-defined percent calculation, such as percent, % growth, percent of base, or accumulated percent, there is no change when you show values as a percentage. This is also true with statistical calculations, such as mean or standard deviation, and ranking calculations, such as rank or quartile.

For more information about item-based calculations, see "Item-based Calculations" (p. 41).

Steps

1. Right-click the measures corner of the crosstab.
2. Click **Show Values As**.
3. Choose the type of percentage you want:
   - To show how each value in a row contributes to the total for the row, click **% of Each Row Total**.
   - To show how each value in a column contributes to the total for the column, click **% of Each Column Total** .
   - To show how each value in the crosstab contributes to the total for the crosstab, click **% of Overall Total**.

     The **% of Overall Total** option is available only when there is one overall total for the crosstab. If you insert a stacked set, resulting in multiple totals, the values revert to the default **Actual Values**.

Tip: To restore the values, right-click the measures corner of the crosstab and click **Actual Values**.

Sort Values

By default, Analysis Studio retrieves data in the order defined in the data source. You can sort data to quickly view the most important data.

You can list items in ascending or descending order based on
- a value, such as revenue
- a label, such as name

Whether you select a set or an individual row or column, items are sorted based on the default measure and the summary values of the opposite axis.

In nested crosstabs, items are sorted based on the values of the innermost nested row or column of the opposite axis. For example, a crosstab contains **Years** in the columns and **Retailers** nested within **Products** in the rows. Select **2005**, sort in descending order, and you see **Retailers** listed from the largest value to the smallest value for each product.

Sorted items are automatically resorted when you perform a drill (p. 27) or replace (p. 25) operation on the opposite axis, if **Based on row** or **Based on column** in the **Sort** dialog box is set to the default.

When you replace the sorted set itself, the new set uses the default sort order. If you replace Employees in the previous example with **Order Method**, the **Order Method** set is unsorted.

Steps

1. Select a set, row, or column to sort.
2. Click the sort button on the toolbar.

3. If the item you select contains alphanumeric values, choose either **Sort by labels** or **Sort by values**.

4. Do one of the following:
   • To arrange items from the smallest to the largest value, click **Ascending**.
   • To arrange items from the largest to the smallest value, click **Descending**.
   • To override the default sort behavior of a set, click **Custom**.

The data appears sorted in the crosstab. An icon next to the label in the overview area shows you that a sort is applied to that set.

Tip: To remove a sort or restore the default order, click **No Sort**.

Use Custom Sorting

You can use the custom sort options to override the default sorting behavior. For example, you can sort items based on a measure other than the default measure, or based on a row or column other than the summary values of the opposite axis. The custom sort options also lets you sort by attributes.

By default, items in nested sets are sorted based on the values of the innermost nested row or column. You can use custom sorting to sort nested or stacked sets differently than this default.

For an example of custom sorting, see "Example - Perform a Custom Sort" (p. 52).

You must select a set to perform a custom sort.

Steps

1. Select a set.
2. Click the sort button on the toolbar, and click **Custom**.
   The **Sort** dialog box opens.
3. Under **Sort order**, select **Ascending** or **Descending**.
4. Under **Options**, select whether to sort
   • **Based on column** or **Based on row**
     You can change the defaults as needed.
   • **Based on attribute**
5. Click **OK**.
   Tip: To remove a sort or restore the default order, click **No Sort**.

Create a Chart

Charts are a graphical way of presenting information. Use charts to reveal trends and relationships that are not evident in tabular reports. 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.
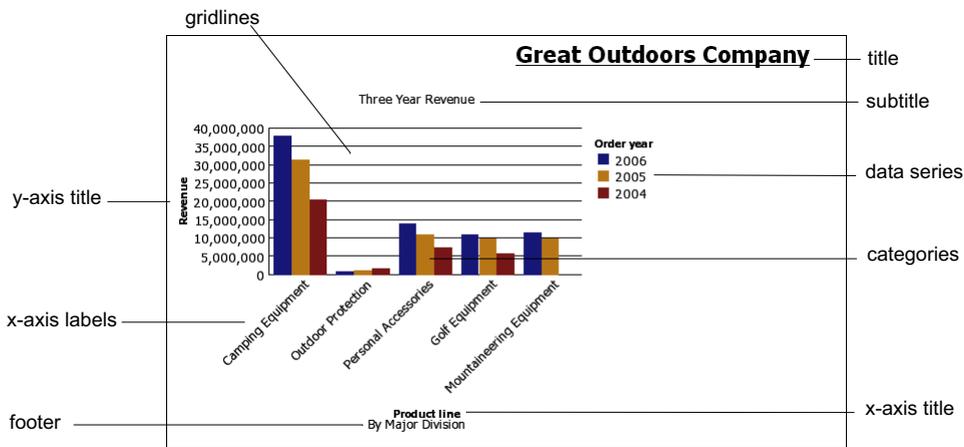
You can also drill up and drill down (p. 27) on charts.

Charts plot the crosstab rows as the data series. Nested rows appear as joined items in the legend. Stacked rows appear sequentially in the legend.

Charts plot the crosstab columns on the x-axis. Nested columns are clustered on the x-axis. Stacked columns are plotted sequentially on the x-axis.

Charts plot a single measure on the y-axis. Multiple measures are plotted like any other item.

If you have the necessary permissions, you can enhance your chart in Report Studio. You can change the appearance of the columns, lines, and areas; add notes and baselines; or customize the chart properties to present the chart more effectively. For more information, see the Report Studio *User Guide*.

Tip: To open your chart in Report Studio, from the **File** menu, click **Open in Report Studio**.

Note: If you make and save changes to an Analysis Studio chart in Report Studio, the chart can no longer be opened in Analysis Studio.

For information about charts, see "Charts" (p. 77).

Steps
1. With the crosstab open, click the chart button on the toolbar.
2. Click the chart type you want.
   You can also choose
   • whether to use a different grouping type, if available
   • whether to show the values on the chart
   • whether to give the chart a 3-D visual effect
   Tip: You can use the display button on the toolbar to show only the chart, only the crosstab, or both.

Example - Look for a Trend in Order Method Revenues

You are a business analyst at the Great Outdoors Company, which sells sporting equipment. You are asked to analyze the consequences of discontinuing the fax and mail order methods, which are expensive to process.

You want to see if revenues for these methods are growing or declining.

Before you can try this example, you must set up the sample packages that come with Cognos 8. For more information, see the Cognos 8 *Administration and Security Guide*.

Steps
1. Open the **Order Methods Revenue** analysis (p. 20).
   Tip: You can also use the **Order Methods Revenue** sample described in the Samples chapter.

2. In the crosstab, select **Order Methods**.
3. Click the sort button on the toolbar, and then click **Sort by values, Descending**.

   You can see that mail and fax orders are not major contributors to sales. Now you want to see if the trend of mail and fax orders is increasing or decreasing over time.
4. Drag **Years** from the **Years** folder and replace **Retailers**.

Revenue	2004	2005	2006	Years
Telephone	$10,120,169.54	$16,000,478.70	$18,202,550.86	**$44,323,199.10**
Sales visit	$7,736,986.72	$15,654,452.62	$17,319,709.18	**$40,711,148.52**
Web	$4,705,089.34	$12,540,811.96	$20,282,832.18	**$37,528,733.48**
E-mail	$5,940,861.14	$9,233,657.40	$11,883,050.12	**$27,057,568.66**
Fax	$2,450,419.14	$3,346,471.10	$3,628,271.46	**$9,425,161.70**
Mail	$3,260,330.26	$4,005,776.00	$1,941,161.00	**$9,207,267.26**
Special	$536,707.36	$1,776,840.78	$1,009,761.02	**$3,323,309.16**
Order Method	**$34,750,563.50**	**$62,558,488.56**	**$74,267,335.82**	**$171,576,387.88**

You want to visually emphasize the revenue trend, so you create a chart.

5. Click the chart button on the toolbar.
6. Click **Column chart, standard**.

   You can see that the rate of growth for the mail and fax order methods is unsatisfactory compared to other methods.
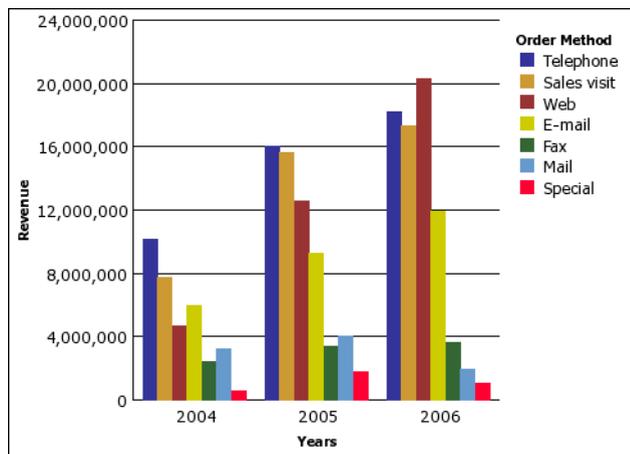
7. Save the analysis. In the **Name** box, type

   Order Methods Trend
8. Leave the default destination folder as **Public Folders,** and click **OK**.

You now have more information for further analysis. For example, you can rank the order methods .

Chapter 5: Limiting Data

You can filter out unnecessary data using a variety of techniques, depending on your business question, how you want to compare your data, and how much data you must include in your analysis. You can

- filter values to show only the data you want to view (p. 33)
- exclude items to eliminate unwanted information (p. 34)
- apply a top or bottom rule, which is useful when analyzing a large amount of data (p. 34)
- create a user-defined filter to limit the items shown to those that meet a specific criteria, such as products discounted by more than 10% (p. 35)
- remove rows or columns containing only missing values (p. 36)

Filter Values Using Context

You can use one or more items to quickly focus your analysis on a particular view of the data. This technique is known as filtering using context.

For example, you have a crosstab showing products in the rows and revenue for different quarters in the columns. To change the context to Asia, you drag Asia from the data tree to the **Context** section of the overview area. The crosstab then shows only the values for Asia.

Changing context changes the values that appear. It does not limit or change the items in the rows or columns.

Steps

1. In the data tree, select or search for one or more items to filter on.
2. Drag the item that you want to filter on into the **Context** section of the overview area.
   A drop-down list box appears under **Context**.
3. Click the item that you want.
   The crosstab shows the results only for the selected item.
   Tip: To change context, select a new item from the drop-down list under **Context**.
4. If you want to use a custom set as a filter, drag the custom set from the **Analysis Items** tab to into the **Context** section of the overview area.

Pin the Context of a Set

When you change the **Context** section of the overview area, the values shown for the selected set also change. This includes the items that meet criteria for any applied filters, sorting, ranking, and so on. If you want the applied settings to ignore context changes, you can pin the context of the selected set.

For example, you have a crosstab showing the top three products by order method. You drag **Years** from the data tree to the **Context** section of the overview area. As you select different years, the top three order methods change. You are interested in the performance of a particular set of order methods and want to compare the results for the same set in other years, so you pin the current context. Now you can select different years and keep the same set of order methods in the crosstab.

Steps

1. Select the set whose context you want to pin.
2. Open the properties pane.

3. Click **Definition**.
4. Click **Hold Current Context**.
5. Click **OK**.

An icon next to the item label in the overview area shows you that the context is pinned.

Tip: To restore dynamic context, repeat steps 1 to 3 and click **Use Dynamic Context**.

Exclude Items

You can choose to remove individual items that are not needed in your analysis.

When you exclude items, you exclude the value from the **Subtotal (included)** subtotal, as well as hide the row or column from view. Its value is now rolled up into the **Subtotal (excluded)** subtotal.

If you want to include the values of hidden rows and columns, use the **Hide** command (p. 26).

Note: You cannot exclude items in a selection-based set.

Steps

• Right-click a row or column and click **Exclude**.

   Tip: To show excluded items, select the set that contains the excluded item, open the properties pane, click **Excluded Items**, and then click **Include***(name of excluded item)* or **Include All**.

Limit Data to Top or Bottom Values

You want to quickly focus your analysis on the data of greatest significance to your business question. For example, you want to identify your top 100 customers and what that group of customers is worth.

You can limit the data to the top or bottom values of a set. This helps to keep the data shown in the work area small, even when using large data sources.

You can define a top or bottom rule by specifying

• a number, such as the top 50 or the bottom 50 sales people by performance
• a percentage, such as customers who contribute to the top 10% of overall revenue
• a cumulative sum, such as customers who contribute to the first ten million dollars of overall revenue

To try it yourself, see "Example - Find Your Top or Bottom Performers" (p. 53).

If the selected set contains a user-defined filter, the top or bottom rule applies only to the included values. For example, if you apply a filter to show only retailers with revenue greater than one million dollars, the bottom rule applies to the lowest values within those results.

Changing the context section of the overview area changes the values shown for the selected set. As a result, the items that meet the top or bottom rule may also change. If you want the filter rules to ignore context changes, you can pin the context (p. 33).

Steps

1. Select the set that you want to limit.
2. Click the top or bottom button on the toolbar.
   The **Define top or bottom filter** dialog box appears.
3. Under **Top or bottom**, click **Top** or **Bottom**.
4. Under **Number of items**, specify a number, percentage, or cumulative sum.
5. In the **By measure** box, click the measure that you want to use to specify the top or bottom value.
   Use the default measure when you want the top or bottom rule to be automatically recalculated when the measure changes in the crosstab.

6. In the **For row** box or **For column** box, click the item that contains the values to use to specify the top or bottom rule.

   Use the default item when you want the top or bottom rule to be automatically recalculated during drill and replace operations.

7. Click **OK**.

Tip: To remove the top or bottom filter, under **Top or bottom**, click **None**.

Create a User-Defined Filter

You can filter out data so that only the data you require appears in the analysis.

You can specify a filter by using

- measures, such as revenue
- calculations
- labels, such as Asia
- attributes, such as color = black

You can use the **Type** drop down list to specify a filter.
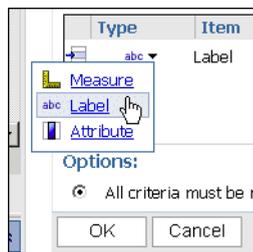
Filters and Calculations

Filters cannot use calculations that reference the set being filtered because this creates a circular reference. Depending how ranking functions (such as rank or quartile) or percentage functions (such as percent of total) are customized, they may not be available when defining a filter.

Steps

1. Select a set.
2. Click the filter button on the toolbar.
3. Click **Add a filter line**.
4. Under **Type**, select the type of filter - measure, label, or attribute
5. Select the item on which to filter.
6. Select the operator.
7. Specify the value.
8. Specify the row or column.

   If another filter is needed, click **Add a filter line**.
9. Click **OK**.

   Tip: To delete a filter, select it in the **Filter** dialog box and then click the delete button on the toolbar.

Combine User-Defined Filters

You can combine filters to create custom AND and OR conditions.

When you filter your data based on a number of criteria, there may be filter rules that are optional and filter rules that are required. You group rules that are mandatory with AND. You group filter rules that are optional with OR. For example, customers filtered by Revenue > 1000000 AND Discount >.15 gives different results from Customers filtered by Revenue > 1000000 OR Discount > .15.

A more complex scenario may require combining both mandatory and optional filter rules.

To try it yourself, see "Example - Combine Filters" (p. 55).

Steps
1. Select a set.
2. Click the filter button on the toolbar.
3. Click **Combine filter lines**.
4. Press Shift+click or Ctrl+click to select the filter icons next to the filter lines that you want to group.
   Tip: To create a filter, click **Add a filter line**.
5. Click **Group**.
   Brackets appear around the grouped items.
6. Click the operator that appears between the filters and click **AND** or **OR** to combine them.
   Continue grouping and specifying **AND** or **OR** operators as needed.
7. Click **OK**.

Suppress Null Totals and Zero Totals

To reduce clutter in an analysis, you can suppress items where the total results in a zero or null value.

You can suppress rows, columns, or both. For example, you may want to suppress the data for a customer with whom you have no interaction over a time period (nulls), but not for a customer who repeatedly buys and returns goods, resulting in a net revenue of zero dollars (zeros).

Steps
1. Click the suppress items button on the toolbar.
2. Choose where to apply the suppression:
   - **Apply to Rows Only**
   - **Apply to Columns Only**
   - **Apply to Rows and Columns**
3. Choose a suppression option to apply:
   - **Total is Null**
   - **Total is Zero**
   - **Total is Null or Zero**
4. A suppression icon next to the item label in the overview area indicates that suppression is applied.
   Tip: To remove suppression, repeat step 1 and click **No Suppression**.

Create a Custom Set

You can specify a name and description for a custom set of data that is of interest to you to reuse later.

A custom set preserves the filters, sort order, and calculations you define.

You can use a custom set only in the analysis in which it is created.

You cannot save a set as a custom set under the following conditions:

- The analysis contains a context filter based on a dynamic definition, such as a calculation or top or bottom filter, rather than a static item or items, such as 2005, or Camping Equipment and Lifestyle Products.
- The set contains a calculation that references multiple dimensions, such as ranking calculations, or a percent of base calculation that references an item from the opposite axis of the crosstab.
- The set contains a user-defined filter based on a calculation.
- The set is expanded to show more than one level.

Steps

1. Select a set.
2. Click the save as custom set button on the toolbar.
3. Specify a name and, if you want, a description of 256 characters or less.
4. Click **Save**.

Custom sets are saved to the **Analysis Items** tab of the **Insertable Objects** pane.

When you insert a saved custom set, an annotation appears in the corner of the block selector of the custom set.

Chapter 6: Calculating Data

Calculations are basic to solving problems and making decisions.

In Analysis Studio, you can specify which subtotals to show and can view summaries and calculations without typing complex expressions.

The calculations available depend on how many columns or rows you select before you click **Calculate**.

Objects selected	Available calculations
A single row or column	rank, show values as a percentage of the total, round or round down values, and show absolute values
Two rows or columns	arithmetic and percentage calculations
Three or more rows or columns	aggregate calculations, such as sum, average, maximum, and minimum
A set	all calculations in the **Calculate** dialog box

You can perform calculations in Analysis Studio by using predefined summaries (p. 40) or item-based calculations (p. 41).

Subtotal Calculations

Subtotals present data more conveniently when large dimensions contain too much data to be shown in the crosstab. A subtotal summarizes the measure based on the rules defined in the data source or model. You can specify the number of items to show in the crosstab (p. 25).

Revenue	Americas
TrailChef Water Bag	$76,748.14
TrailChef Canteen	$117,601.96
TrailChef Kitchen Kit	$178,409.12
TrailChef Cook Set	$203,316.16
TrailChef Deluxe Cook Set	$145,751.16
TrailChef Double Flame	$573,375.76
TrailChef Kettle	$36,916.44
TrailChef Utensils	$81,932.48
Star Lite	$1,447,635.08
Star Dome	$6,928,932.92
Subtotal (10 items)	$9,790,619.22
More & hidden	$49,426,153.68
Total	**$59,216,772.90**

The following table describes each subtotal.

Subtotal	Description
Subtotal (**visible**)	The sum of the visible items, which is updated automatically as you change the data in the crosstab.
More **More & Hidden**	The values of the remaining items beyond the specified number that still meet any filter criteria. **More** changes to **More & Hidden** if there are any hidden values. This subtotal is updated automatically as you change the data in the crosstab.
Subtotal (**Included**)	The sum of the two previous subtotals.
Subtotal (**Excluded**)	The sum of values that are excluded, such as by being filtered out.
Summary	A grand total of all the previous subtotals.

The following diagram shows how subtotals are broken down.
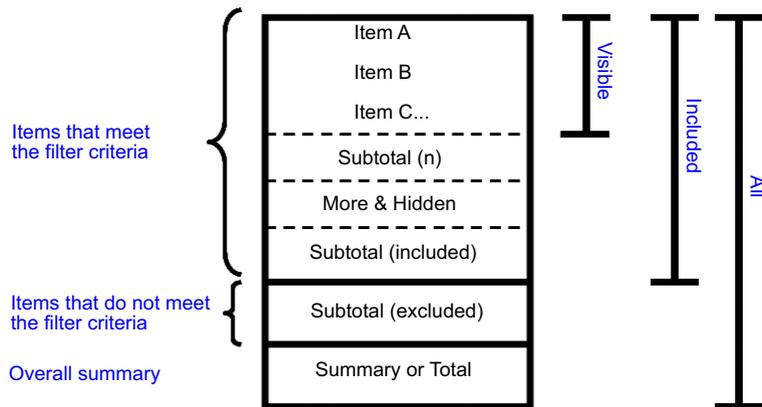
Show or Hide Subtotals

You can use screen space most efficiently by specifying which subtotals to show and which subtotals to hide.

You can also show and hide subtotals using the properties pane .

The only subtotal you can use with selection-based sets is **Total**.

Steps

1. Select a set.
2. Click the subtotals button on the toolbar.
3. Select the subtotals that you want to show and clear the subtotals that you want to hide. Another alternative is to right-click a set and use the shortcut menu.
   Tip: To show only subtotals in the crosstab, click **Show Subtotals Only**.

Summary Calculations

Summary calculations apply to all included values .

Analysis Studio provides the following predefined summary calculations:

- Sum
- Average
- Maximum
- Minimum
- Median
- Variance
- Standard Deviation
- Count

Use a Summary Calculation

You can quickly and easily use a summary to calculate all the included values in a set.

Steps

1. Select the set that you want to summarize.
2. Click the summarize button on the toolbar.
3. Click the calculation that you want.

   A new row or column of summarized data appears.

   Tip: To remove a row or column of summarized data, right-click the row or column and click **Delete**.

Item-based Calculations

You can create a calculation if you need a comparison or ratio that does not exist in the data source, such as actual revenue as a percentage of planned revenue, or the average revenue per employee.

You can perform the following arithmetic calculations in an analysis.

Arithmetic operation	Description
+ (sum)	Adds the values of the selected items.
- (difference	Subtracts the values of one selected item from another.
* (product)	Multiplies the values of the selected items.
/ (division)	Divides the values of the selected items.
Absolute	Calculates the absolute value of the numbers in the selected item.
Round	Rounds the values in the selected item to the nearest integer.
Round down	Rounds the values in the selected item to the next lowest integer.
Square root	Calculates the square root of the values in the selected item.

You can perform the following percentage calculations in an analysis.

Percentage operation	Description
%	Calculates the value of a selected item as a percentage of another item.

Percentage operation	Description
% of total	Calculates each value of a selected item as a percentage of the total.
% difference (growth)	Calculates the difference between two items as a percentage.

You can perform the following analytic calculations in an analysis.

Analytic operations	Description
Average	Calculates the average of values of the selected items.
Maximum	Calculates the maximum value.
Minimum	Calculates the minimum value.
Median	Calculates the middle value in a set of numbers.
Roll up	Calculates the rolled up value.

You can perform the following ranking calculations in an analysis. By default, the highest value is ranked 1.

Ranking	Description
Rank	Calculates the rank of each value.
Percentile	Calculates a percentile, which is a value that corresponds to one of the equal divisions in a sample. For example, a score higher than 89 percent of those attained is in the 90th percentile.
Quartile	Calculates a quartile, which is a value that corresponds to the 25% point in a sample. The first quartile is the 25th percentile, the second quartile is the 50th percentile, and the third quartile is the 75th percentile.
Quantile	Calculates a quantile, which is a value that divides a sample into percentiles. For example, if the specified quantile is 5, the percentiles are 20, 40, 60, 80, and100.

Create an Item-Based Calculation

You can create a calculation if you need a comparison or ratio that does not exist in the data source, such as actual revenue as a percentage of planned revenue, or the average revenue per employee. The calculations available depend on how many columns or rows you select .

Calculation results are not stored in the underlying data source. Instead, Analysis Studio reruns the calculation each time you view the analysis. The results are always based on the most current data in the data source.

If you have several calculations in a crosstab, you should be aware of the default solve order .

You cannot edit a calculation. You must delete the calculated row or column and create a new one.

Note: Cells show "--" (two dashes) rather than a value in calculations that use nonadditive measures such as count or average. Nonadditive measures are distinguished by a nonadditive measure icon in the data tree.

Steps

1. Select the rows or columns that you want to use in the calculation.
2. Click the calculate button on the toolbar.
3. Choose whether to use a predefined calculation or create a member-based calculation:
   - To use a predefined calculation, click one of the predefined calculations.
   - To create a member-based calculation, click **Custom**.
     The **Calculate** dialog box appears.
4. In the **Operation** box, click the operation you want to perform.
   Depending on the selected data, you may first need to choose an operation type from the **Operation type** box.
5. Choose which data to use for the calculation:
   - To use existing items, click the items you want in the **Available items** box.
   - To use other data, specify a number in the **Number** box.
6. Click **OK**.

The calculated results appear in a new row or column. By default, the expression used in the calculation is used as the heading name.

Tip: To make the name of the calculated row or column more meaningful, type a new name in the **Calculation name** box.

Calculation Solve Order

When calculations in the rows and columns of a report intersect, Analysis Studio performs the calculations in the following order:

- addition or subtraction
- multiplication or division
- aggregation (rollup)
- remaining arithmetic functions: absolute, round, round down, percentage, average, minimum, maximum, medium, count
- % difference (growth) or % of total
- rank, quartile, quantile, or percentile

If both calculations have the same precedence, for example, if they are both business functions, then the row calculation takes precedence.

If you have the necessary permissions, you can open your analysis in Report Studio and override the order of precedence by changing the solve order property. For more information, see the Report Studio *User Guide*.

Rank Values

Ranking items identifies their relative position to help you compare data.

For example, you can rank a product line, such as golf equipment, to identify how well sales for golf equipment performed relative to other years.

Revenue	2004	2005	2006	Years
Camping Equipment	$20,471,328.88	$31,373,606.46	$37,869,055.58	$89,713,990.92
Golf Equipment	$5,597,980.86	$9,598,268.88	$10,709,215.84	$25,905,465.58
Mountaineering Equipment	$0.00	$9,642,674.54	$11,248,676.06	$20,891,350.60
Outdoor Protection	$1,536,456.24	$988,230.64	$646,428.04	$3,171,114.92
Personal Accessories	$7,144,797.52	$10,955,708.04	$13,793,960.30	$31,894,465.86
Rank (Golf Equipment)	*3*	*2*	*1*	
Products	$34,750,563.50	$62,558,488.56	$74,267,335.82	$171,576,387.88

You can also rank to identify how well sales for golf equipment performed relative to other products in the same axis.

Revenue	2004	2005	2006	Years
Camping Equipment	$20,471,328.88	$31,373,606.46	$37,869,055.58	$89,713,990.92
Golf Equipment	$5,597,980.86	$9,598,268.88	$10,709,215.84	$25,905,465.58
Mountaineering Equipment	$0.00	$9,642,674.54	$11,248,676.06	$20,891,350.60
Outdoor Protection	$1,536,456.24	$988,230.64	$646,428.04	$3,171,114.92
Personal Accessories	$7,144,797.52	$10,955,708.04	$13,793,960.30	$31,894,465.86
Rank (Golf Equipment within Products)	*3*	*4*	*4*	*3*
Products	$34,750,563.50	$62,558,488.56	$74,267,335.82	$171,576,387.88

Ranking operations include rank, percentile, quartile, and quantile .

If you use the default settings, you can rank values quickly by right-clicking a single row or column and clicking **Rank**.

Analysis Studio uses Olympic ranking for data sources.

The exception is that SAP/BW data sources use serial ranking.

Olympic ranking handles ties by assigning an equal rank to items with equal results. Serial ranking handles ties by assigning a sequential number to items in the order they are retrieved in the data source.

Team Results	Olympic Rank	Serial Rank
Red 100 points	Red 1	Red 1
Green 50 points	Blue 2	Blue 2
Blue 75 points	Green 3	Green 3
Yellow 50 points	Yellow 3	Yellow 4
Orange 25 points	Orange 4	Orange 5

Steps

1. Select a row or column to rank.
2. Click the calculate button on the toolbar.

3. Click **Custom**.

   The **Calculate** dialog box appears.

4. In the **Operation type** box, click **Ranking**.

5. Choose the desired options under **Operation, Available items,** and **Based on measure**.

6. Under **Rank**, choose whether to rank within the selected item only, or to rank with other values on the same axis.

7. Click **OK**.

You can now sort the rank results to show them in numerical order.

Use Custom Ranking

By default, ranking is based on the innermost nested set and calculates the items that meet the filter criteria in the selected row or column. To calculate rank using different segments of the data or the outermost set, use custom ranking. For an example of custom ranking, see "Example - Use Custom Rank" (p. 56).

Steps

1. Select a row or column to rank.

2. Click the calculate button on the toolbar.

3. Click **Custom**.

   The **Calculate** dialog box appears.

4. In the **Operation type** box, click **Ranking**.

5. Under **Rank**, click **Custom**.

   You can now sort the rank results to show them in numerical order.

6. Choose the options that you want:
   • Specify whether to rank the highest value or the lowest value as number 1.
   • Change the scope of the rank, such as by ranking only within visible items.
   • Rank by the innermost or outermost nested set in a crosstab.

7. Click **OK**.

You can now sort the rank results to show them in numerical order.

Example - Order Methods Ranking

You are a business analyst at the Great Outdoors Company, which sells sporting equipment. You are asked to analyze the consequences of discontinuing the fax and mail order methods, which are expensive to process.

Now that you have detected a trend in the data, you want to see how they rank in your overall revenues.

Before you can try this example, you must set up the sample packages that come with Cognos 8. For more information, see the Cognos 8 *Administration and Security Guide*.

Steps

1. Open the **Order Methods Trend** analysis (p. 30).

   Tip: You can also use the **Order Methods Trend** sample described in the Samples chapter.

2. Right-click the **Fax** row and click **Calculate, Custom**.

3. In the **Calculate** dialog box, under **Rank**, click **Compare each value in Fax with other values in Order Method**.

4. Click **OK**.

   A new row appears that ranks the **Fax** order method against other order methods for each year.

5. Repeat steps 2 to 4, using the **Mail** order method.

   You can see that both **Fax** and **Mail** rank low in every year.

6. Save the analysis as **Order Methods Rank,** leave the default destination folder as **Public Folders,** and click **OK.**

Revenue	2004	2005	2006	Years
Telephone	$10,120,169.54	$16,000,478.70	$18,202,550.86	**$44,323,199.10**
Sales visit	$7,736,986.72	$15,654,452.62	$17,319,709.18	**$40,711,148.52**
Web	$4,705,089.34	$12,540,811.96	$20,282,832.18	**$37,528,733.48**
E-mail	$5,940,861.14	$9,233,657.40	$11,883,050.12	**$27,057,568.66**
Fax	$2,450,419.14	$3,346,471.10	$3,628,271.46	**$9,425,161.70**
Mail	$3,260,330.26	$4,005,776.00	$1,941,161.00	**$9,207,267.26**
Special	$536,707.36	$1,776,840.78	$1,009,761.02	**$3,323,309.16**
Rank (Fax within Order Method)	*6*	*6*	*5*	*5*
Rank (Mail within Order Method)	*5*	*5*	*6*	*6*
Order Method	**$34,750,563.50**	**$62,558,488.56**	**$74,267,335.82**	**$171,576,387.88**

Chapter 7: Sharing Data

After you complete your analysis and identify the data that best answers your business question, you may need to share that information with colleagues.

A saved analysis can be viewed, printed, scheduled, or enhanced further in Cognos Report Studio like any other report.

If you have the necessary permissions, you can open your analysis in Report Studio to enhance an analysis or deliver it to different people. You can change the default presentation styles to meet your corporate standards, define bursting rules, or modify the query expressions to improve performance. For more information, see the Report Studio *User Guide*.

Tip: To open your analysis in Report Studio, from the **File** menu, click **Open in Report Studio**.

Note: If you make and save changes to an Analysis Studio analysis in Report Studio, the analysis can no longer be opened in Analysis Studio.

When an analysis is imported into Report Studio, the report contains one query which processes all the sets found on the crosstab. Each set is defined by 18 data items that segment and summarize the base set definition. To maintain reports converted from Analysis Studio in Report Studio, you should understand what each of these items represents and how they relate to each other. For more information, see the Report Studio *User Guide*

Analysis results can be shared in several ways, such as:
- as HTML output in Cognos Viewer (p. 48)
- as a PDF (p. 48)
- as an Excel spreadsheet (p. 49)
- in CSV (p. 49) or XML (p. 49) format

To improve the presentation of the results, you may want to add a title, separate the data on different pages, or expand the values in **More** to show all the details (p. 47).

Set the Report Options

You set the report options to make changes to your analysis in preparation for distributing it in different formats.

Run options apply when you run an analysis in Cognos Viewer or open an analysis in Report Studio. These settings are not visible in the work area of Analysis Studio.

Tab	Purpose
Title	Specify a title or subtitle.
Display	Specify whether and where to show the filter criteria. Define page breaks. Expand the values in **More** to show all the details.
Paper	Set paper orientation and paper size if the output format is PDF.

Steps

1. Open the analysis.
2. From the **Run** menu, click **Run Options**.

3. Change the values that meet your reporting needs and click **OK**.

Define Page Breaks

Use page breaks to show different occurrences of data on each page shown in Cognos Viewer. For example, you have a crosstab that shows all products sold by your company, where the outermost rows are grouped by product line. You can specify a page break to show the details for each product line on a separate page when you run a report in Cognos Viewer.

The page break settings are ignored if the analysis contains no corresponding groups, sections, or stacked sets.

The page break options do not apply to charts. Charts appear on a single page.

Steps

1. From the **Run** menu, click **Report Options**.
2. On the **Page** tab under **Page breaks**, choose a type of page break:
   - To insert a page break at the outermost rows, select the **Outermost groups on rows** check box.
   - To insert a page break at each new section, select the **Sections** check box.
3. Click **OK**.

   Tip: To specify default page breaks, clear all the check boxes.

View Output in HTML Format

You can create an HTML version of your analysis. For example, you may want to see all the data in a large set

You can also view output in PDF, CSV, XML, and Excel or Excel 2000 format.

Steps

1. Open the report that you want in Analysis Studio.
2. From the **Run** menu, click **Run report** (**HTML**).

   The analysis runs in the Cognos Viewer window.

View Output in PDF Format

To save a snapshot of your data, you can create a PDF (Portable Document Format) version of your analysis. For best results, use this format when you want to print a report (p. 50).

You can also view output in HTML, CSV, XML, and Excel or Excel 2000 format.

You must have Adobe Acrobat Reader installed on your computer to view output in PDF format.

Depending on which version of Acrobat Reader you use, you may have unexpected results with tooltips and drilling behavior. For more information, see "Charts in PDF Output Show Unexpected Results" (p. 57).

Steps

1. Open the report that you want in Analysis Studio.
2. From the **Run** menu, click **Run report** (**PDF**).

   The report opens in PDF format in a new window.

   Tip: To specify the orientation and page size of your PDF report, from the **Run** menu, click **Report Options** and then click the **Paper** tab.

View Output in CSV Format

You can view the analysis data in CSV (Comma Separated Values) format.

The output is determined by the configuration of the computer and by the browser. If you have Excel installed on your computer, Excel may appear in your browser window or in a new window, depending on the configuration. If Excel appears in your browser window, you will see the **File** menu.

You may be asked whether you want to download the CSV file, or you may have the option to open it or save it.

If you have an application other than Excel associated with CSV, the browser calls that application.

You can also view output in HTML, PDF, XML, and Excel or Excel 2000 format.

You cannot export charts to CSV files.

Steps

1. Open the report that you want in Analysis Studio.
2. From the **Run** menu, click **Run report** (**CSV**).

    The report opens in an Excel spreadsheet.

View Output in XML Format

You can view the analysis data in XML (eXtensible Markup Language) format. XML output is used as an input source for other applications. It is generally not used to share data among end users.

You can also view output in HTML, PDF, CSV, and Excel or Excel 2000 format.

You cannot export charts to XML files.

Steps

1. Open the analysis that you want in Analysis Studio.
2. From the **Run** menu, click **Run report** (**XML**).

    The report opens in XML format in a new window.

View Output in Excel or Excel 2000 Format

You can view reports in different Excel formats, depending on the version of Excel used in your company.

You can also view output in HTML, PDF, CSV, and XML format.

Excel format supports up to 65,536 rows on a single worksheet. When a report exceeds this limit, the data appears on multiple worksheets in the Excel workbook.

The 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, specify the desired date format in Excel.

Other limitations exist when producing reports in Microsoft Excel format. For more information about these limitations, see Producing Reports in Microsoft Excel Format.

Steps

1. Open the analysis that you want in Analysis Studio.
2. From the **Run** menu, click **Run report** (**Excel**).

    The report opens in a new window.

    Tip: To view the report in another Excel format, click the Excel button in Cognos Viewer and select the desired format.

Print Output

Print an analysis to obtain a paper copy. For best results, use the PDF format .

For more information, see the Cognos Connection *User Guide*.

Steps

1. Open the analysis that you want.
2. From the **Run Report** menu, click **Run Report** (**PDF**).

   The analysis opens in PDF format.
3. On the Acrobat Reader toolbar, click print.

   Tip: To specify the orientation and page size of your PDF report, from the **Run** menu, click **Report Options** and then click the **Paper** tab.

Chapter 8: Analysis Studio Examples

If you have some experience with Analysis Studio and want to improve your skills, you can try these example tasks. Each example gives you some guidelines on how to create each sample analysis.

If you have never used Analysis Studio, see the Analysis Studio Tour first to learn basic skills.

Example - Create an Asymmetrical Crosstab

You can create asymmetrical crosstab layouts.

In this topic, you learn how to view several kinds of data in a single crosstab. You want answers to these questions:

- How much are the overhead expenses and marketing expenses for two specific order methods?
- How much is the revenue for all products?
- How much revenue was generated by two specific staff members?

If you need more help, see "Insert Data" (p. 16) and "Insert Sets of Data in Complex Layouts" (p. 24).

Steps

1. Create a new analysis using the **Great Outdoors Company** package.
2. Add the following items to the crosstab:
   - **Revenue** as the default measure
   - **Years** (in **Years**) in the columns
   - **E-mail** and **Web** (in **Order Method**) in the rows
   - **Marketing expense** and **Overhead expense** (in **Measures, Other measures**) as nested rows
3. Add **Products** as a stacked set under **Order Method**.

   You now want to insert a new set between **Order Method** and **Products**.
4. Select **Products** as the target location in the crosstab.
5. In the data tree, press Ctl+click to select **Josef Lopez** and **Yvette Lattrez** (in **Sales Territory, By Staff name**).
6. Right-click the selected names and, from the **Insert** menu, click **Above Selected Item**.

   Your analysis will look like this.

Revenue (measure)		2004	2005	2006	Years
E-mail	Marketing expense	2,302,290.42	7,001,739.38	3,409,592.04	12,713,621.84
	Overhead expense	10,845,730.48	20,035,632.43	16,099,891.9	46,981,254.81
Web	Marketing expense	2,302,290.42	7,001,739.38	3,409,592.04	12,713,621.84
	Overhead expense	10,845,730.48	20,035,632.43	16,099,891.9	46,981,254.81
Total	Marketing expense	4,604,580.84	14,003,478.76	6,819,184.08	25,427,243.68
	Overhead expense	21,691,460.96	40,071,264.86	32,199,783.8	93,962,509.62
Josef Lopez		271,034.02	198,267.78	233,716.8	703,018.6
Yvette Lattrez			916,677.46	2,114,233.02	3,030,910.48
Total		271,034.02	1,114,945.24	2,347,949.82	3,733,929.08
Camping Equipment		20,471,328.88	31,373,606.46	37,869,055.58	89,713,990.92
Golf Equipment		5,597,980.86	9,598,268.88	10,709,215.84	25,905,465.58
Mountaineering Equipment			9,642,674.54	11,248,676.06	20,891,350.6
Outdoor Protection		1,536,456.24	988,230.64	646,428.04	3,171,114.92
Personal Accessories		7,144,797.52	10,955,708.04	13,793,960.3	31,894,465.86
Products		34,750,563.5	62,558,488.56	74,267,335.82	171,576,387.88

Example - Perform a Custom Sort

In this topic, you learn how to change the default sorting in a crosstab.

You want to know the answers to these questions:

- How profitable are your products?
- What were your most profitable products in 2005?
- What were your most profitable sales territories in 2005?

If you need more help, see "Use Custom Sorting" (p. 29).

Steps

1. Create a new analysis using the **Great Outdoors Company** package.
2. Add the following items to the crosstab:
   - **Gross Profit** as the default measure
   - **Years** (in **Years**) in the columns
   - **Sales Territory** (in **Sales Territory**) as rows
   - **Products** as nested rows
3. Right-click the **2005** column in the crosstab and click **Sort, Descending**.

   Note the change in **Products**. You now want to sort the sales territories in order of profitability for 2005. But if you select **Sales Territory** and sort descending, the default will sort based on the summary for all years, even though you are interested in performance for 2005.
4. Select **Sales Territory** in the crosstab.
5. Open the **Custom Sort** dialog box.
6. Sort in descending order, and under **Options**, change the value in **Based on the column** from the default to **2005**. Leave the default in **By measure** as **Gross Profit**.

   Your analysis will look like this.

Gross profit (measure)		2004	2005	2006	Years
Central Europe	Camping Equipment	1,502,740.7	2,370,868.82	2,697,033.44	6,570,642.96
	Golf Equipment	744,740.96	1,086,459.78	1,034,027.58	2,865,228.32
	Mountaineering Equipment		996,631.06	1,124,335.24	2,120,966.3
	Outdoor Protection	191,993.58	148,387.22	94,939.16	435,319.96
	Personal Accessories	914,311.66	1,203,586.48	1,396,588.2	3,514,486.34
	Products	3,353,786.9	5,805,933.36	6,346,923.62	15,506,643.88
Americas	Camping Equipment	2,463,558.02	2,723,916.84	3,357,513.74	8,544,988.6
	Golf Equipment	903,221.5	1,063,320.04	1,221,704.92	3,188,246.46
	Mountaineering Equipment		730,998.8	931,357.16	1,662,355.96
	Outdoor Protection	272,295.2	146,450.62	103,706.88	522,452.7
	Personal Accessories	953,578.58	1,061,068.4	1,267,454	3,282,100.98
	Products	4,592,653.3	5,725,754.7	6,881,736.7	17,200,144.7
Northern Europe	Camping Equipment	448,621.4	1,396,624.88	1,542,241.2	3,387,487.48

Example - Find Your Top or Bottom Performers

You can find your most profitable retailers.

In this topic, you learn how to find the top three products within each of the top five cities by revenue. The items returned for each of the top counts change when you change the default measure or add a context filter.

You want to know the answers to these questions:
- What are the top five cities by revenue?
- What are the top three products in each of the top five cities?
- What is the effect of changing the measure or filter criteria?

If you need more help, see "Insert All the Items of a Level" (p. 19), "Limit Data to Top or Bottom Values" (p. 34), and "Filter Values Using Context" (p. 33).

Steps

1. Create a new analysis using the Great Outdoors Company package.
2. Add the following items to the crosstab:
   - **Revenue** as the default measure
   - all the items in the **Sales Branch City** level (in **Sales Territory**) in the rows
   - **Products** as nested rows
   - **Years** (in **Years**) in the columns
3. Apply a top 5 rule for **Sales Branch City**.
4. Apply a top 3 rule for **Product line**.
5. Add **Order Method** as a context filter.

   See what happens to the top performers when you filter the crosstab using different order methods or when you change the default measure.

Example - Use a Calculation in a Filter

You can use an item-based calculation in a user-defined filter.

In this topic, you learn how to find the products with the least revenue, and more specifically, products whose average revenue is 100,000 or less.

You want to know the answers to these questions:

- What is the average revenue for all years?
- What is the average revenue for each product?
- Which products have an average revenue of 100,000 or less?

If you need more help, see "Create an Item-Based Calculation" (p. 42) and "Create a User-Defined Filter" (p. 35).

Steps

1. Create a new analysis using the **Great Outdoors Company** package.
2. Add the following items to the crosstab:
   - **Revenue** as the default measure
   - all the items in the **Product name** level (in **Product**) as the rows
   - **Years** as the columns
3. Calculate the average for **Years**.
4. Calculate the average for **Product name**.
5. Create a filter to find the least profitable products, such as products whose average revenue is 100,000 or less.

   Your analysis will look like this.

Rows:	Columns:	Context:
▼ Product name ▼	▼ Years ▼	↪

Filters are applied. See the Properties pane for more details.

Revenue (measure)	2004	2005	2006	Average (Years)	Years
TrailChef Water Bag	60,354.6	90,744.76	93,314.8	81,471.38666667	244,414.16
TrailChef Cup	48,037.84	77,839.7	92,538.76	72,805.43333333	218,416.3
TrailChef Kettle	26,612.08	41,966.88	50,016.2	39,531.72	118,595.16
TrailChef Utensils	62,722.52	94,650.06	110,711.98	89,361.52	268,084.56
Star Peg	18,237.54	30,919.1	36,781.14	28,645.92666667	85,937.78
Average (Product name)	59,227.89043478	59,372.30666667	56,966.0562963	59,219.34222222	166,791.75111111
More	1,146,276.9	1,266,931.78	1,154,720.64	1,189,309.77333333	3,567,929.32
Subtotal (excluded)	33,388,322.02	60,955,436.28	72,729,252.3	55,691,003.5333333	167,073,010.6
Total	34,750,563.5	62,558,488.56	74,267,335.82	57,192,129.2933333	171,576,387.88

Example - Combine Filters

You can combine filters to find specific data.

In this topic, you analyze the most efficient retailers. You want to know the answers to these questions:

- How many retailers have gross profit greater than 1,000,000?
- How many retailers have revenue less than 5,000,000?
- How many retailers have profit greater than 1,000,000 or revenue less than 5,000,000 and had fewer than 100 items returned?

If you need more help, see "Insert All the Items of a Level" (p. 19), "Create a User-Defined Filter" (p. 35), and "Combine User-Defined Filters" (p. 35).

Steps

1. Create a new analysis using the Great Outdoors Company package.
2. Add the following items to the crosstab:
   - **Revenue** as the default measure
   - **Retailer** (in **Retailer**) as the rows
   - **Years** (in **Years**) as the columns
3. Create a filter for retailers who made a gross profit of greater than 1,000,000.
4. Add another filter for retailers who had revenue of less than 5,000,000.
5. Add another filter for retailers who have fewer than 100 returns.
6. Combine and group the filters to answer the business question.
   Your analysis will look like this.

Revenue	2004	2005	2006	Years
Equipment Rental Store	$337,705.88	$352,423.78	$540,122.62	$1,230,252.28
Eyewear Store	$0.00	$0.00	$0.00	$0.00
Subtotal (included)	$337,705.88	$352,423.78	$540,122.62	$1,230,252.28
Subtotal (excluded)	$25,731,603.86	$50,262,126.10	$59,286,824.86	$135,280,554.82
Retailer	$26,069,309.74	$50,614,549.88	$59,826,947.48	$136,510,807.10

Example - Use Custom Rank

You can override the default rank behavior.

In this topic, you analyze the relative performance of order methods. You want to know the answers to these questions:

- What is the rank of the order methods shown in the crosstab?
- What is the rank of the order methods in relation to all order methods?

If you need more help, see "Exclude Items" (p. 34) and "Use Custom Ranking" (p. 45).

Steps

1. Create a new analysis using the Great Outdoors Company package.
2. Add the following items to the crosstab:
   - **Revenue** as the default measure
   - **Order Method** as the rows
   - **Years** (in **Years**) as the columns
3. Exclude **Mail** and **Fax**.
4. Select **Years** and rank by right-clicking.
   Analysis Studio ranks the items. Is the rank the same if you include all items?
5. Select **Years** and use custom rank.
6. Under **Rank within the following**, click **All items**.
7. In the **Calculate** dialog box, under **Calculation name**, type
   Rank
   Your analysis will look like this.

Revenue	2004	2005	2006	Rank	Years
Mail	$3,260,330.26	$4,005,776.00	$1,941,161.00	6	$9,207,267.26
E-mail	$5,940,861.14	$9,233,657.40	$11,883,050.12	4	$27,057,568.66
Web	$4,705,089.34	$12,540,811.96	$20,282,832.18	3	$37,528,733.48
Sales visit	$7,736,986.72	$15,654,452.62	$17,319,709.18	2	$40,711,148.52
Special	$536,707.36	$1,776,840.78	$1,009,761.02	7	$3,323,309.16
Subtotal (included)	$22,179,974.82	$43,211,538.76	$52,436,513.50		$117,828,027.08
Subtotal (excluded)	$12,570,588.68	$19,346,949.80	$21,830,822.32		$53,748,360.80
Order Method	$34,750,563.50	$62,558,488.56	$74,267,335.82		$171,576,387.88

Appendix A: Troubleshooting

This chapter describes some common problems you may encounter. For more troubleshooting problems, see the Cognos 8 *Troubleshooting Guide*.

Charts in PDF Output Show Unexpected Results

Charts, when viewed in PDF output, have different levels of interaction support, depending on the version of Adobe Acrobat Reader and the style of chart element.

Adobe Reader version 5 does not support tooltips. Drill up and down and Go to links have limited support, due to technical limitations. Only rectangular areas in charts, such as bars, columns, horizontal labels on the axis, or legend labels can be enabled for drill or Go to interaction. Nonrectangular areas, such as pie slices in pie charts, cannot be enabled for drill or Go to interactions.

Adobe Reader version 6 and 7 supports tooltips, drill up and down, and Go to links for all chart types. When chart elements overlap or are separated by only a few pixels, the interactive region may be smaller than the area shown.

Appendix A: Troubleshooting

Appendix B: Samples

Analysis Studio includes sample analyses that are based on the fictional retail company, The Great Outdoors . You can find these and other analyses in the Analysis Studio Samples folder on the Public Folders tab of Cognos Connection, under the Great Outdoors Company package.

Order Methods Revenue Sample

This analysis shows a basic crosstab that compares revenue by retailer and order method.

Order Methods Trend Sample

This analysis shows the growth rate trend for each order method.

Order Methods Rank Sample

This analysis shows the rank for each order method over three years.

Asymmetrical Crosstab Sample

This analysis shows different kinds of data in a single crosstab.

Custom Sort Sample

This analysis shows a crosstab that uses custom sorting to override the default sort behavior.

Top or Bottom Sample

This analysis shows the top three products within each of the top five cities by revenue.

Calculate and Filter Sample

This analysis shows a crosstab that uses a calculation in a user-defined filter.

Combine Filters Sample

This analysis uses several combined filters to answer a business question.

Custom Rank Sample

This analysis shows a crosstab that uses custom ranking to override the default rank behavior.

Overhead Expenses Sample

This analysis shows a chart and a crosstab display that uses aggregate calculations.

Camping Equipment Contribution Sample

This analysis shows a crosstab with nested layout and custom sorting to illustrate the best performance by Camping Equipment in 2006.

Appendix C: Tips for PowerPlay Series 7 Users

Like PowerPlay Web, Analysis Studio helps you answer business questions quickly and easily. Analysis Studio supports the same drill up and down behavior and drag-and-drop control as PowerPlay Series 7, while addressing demands for more effective ways to analyze large amounts of data.

One important difference from PowerPlay Series 7 is that the amount of data shown in Analysis Studio is reduced to improve query performance, to avoid overwhelming you with details, and to help you focus on the analysis.

What is New in Analysis Studio?

New techniques for exploration and comparison are required to analyze the large amounts of data that businesses produce.

What is New	Details
Enhanced user interface	The enhanced Analysis Studio user interface (p. 10), comprised of the data tree, a crosstab, and the overview area, lets you access and manipulate data from large OLAP (online analytical processing) sources.
Easier comparative analysis	Two key PowerPlay Windows capabilities are now available for Web use: • the ability to select multiple members from anywhere in a hierarchy (p. 18) • the ability to insert multiple sets of data in the rows or columns (p. 23)
More filters	Enhanced Top or Bottom filters, as well as the ability to create multiple filter rules by combining filters, help you to focus on the data that answers your business needs (p. 33).
More calculations	New summary calculations, such as average, count, and variance, let you summarize a set of related items without the need to retrieve all the data (p. 40). Ranking calculations, such as rank and quartile, help to show the relative importance of the data in your analysis (p. 44).
More chart types and chart configurations	Cognos 8 supports more charts, such as Pareto charts, and more chart configurations, such as 100% stacked charts (p. 77).
Support for more data sources.	OLAP access is enhanced to expose unique features, such as named sets and attributes. Cognos 8 also supports relational data that is dimensionally modeled in Framework Manager, the Cognos 8 modelling solution.

Mapping Series 7 to Cognos 8

Cognos 8 retains many of the terms found in Series 7. Some new terms have been introduced because they are common OLAP terminology. For example, a category is now called a member. Some terms have been updated to be consistent with other Cognos components.

For more information, see "The Analysis Studio Interface" (p. 10).

PowerPlay	Cognos 8 Equivalent
Dimension viewer	Data tree
Dimension line	Overview area
Layer	Section
Dimension Filter	The **Context** section of the overview area
Category	Member
Explain	For items in the data tree, use the **Information** pane (p. 12). For items in a crosstab or chart, use the properties pane (p. 12).
Percent Growth	% difference

The following illustration shows the major interface elements in Analysis Studio with their new names:

The Crosstab

When viewing very large reports, much of the data is of little interest to the viewer. Analysis Studio shows an amount of data that is limited by design, as well as by any filters added by the user, and summarizes the remaining data in a single subtotal called **More**(p. 39). This technique lets you sample enough data to quickly understand the problem and helps you focus on the most significant data.

To change the number of rows or columns shown in a set, click **More,** or change the setting in the properties pane (p. 25). The default number of items shown and the maximum number of items shown is controlled by the administrator.

To view all the data in a report, you can run the report like any other in Cognos 8 (p. 48).

In Analysis Studio:

- the row and column labels are always in view
- in the measures cell of the crosstab, you can use the right-click menu to change the default measure
- in the measures cell of the crosstab, you can click **Show Values As** to calculate the percentage on nested subtotals, % of each row total, and % of each column total.
- you can insert single items with or without details (p. 19).

The Data Tree

The data tree in Analysis Studio is similar to the dimension viewer in PowerPlay Series 7. Some of the icons have changed to be consistent with other Cognos 8 components. In some cases, new icons have been introduced to provide more information about the data you are exploring.

The data tree in Analysis Studio limits the number of members shown when you browse data. This technique allows you to see data at any level, while avoiding the usability and performance issues caused by viewing lists that contain thousands of members. You can search for items of interest (p. 16) and drag the results directly into the crosstab as rows or columns.

PowerPlay Web	Cognos 8 Equivalent	Icon	Comments
Cube	Package		In Cognos 8, all data sources published to Cognos Connection are called packages.
Dimensions	Dimensions with multiple hierarchies		In Cognos 8, folders cannot be dragged. Only members and measures can be inserted into the crosstab.
Category	Member		Represents a member. Can also represent root members in a hierarchy that contains multiple root members.
	Root Member		Represents a root member in a hierarchy that contains only one root member.
Measure folder	Measure dimension		The terminology and icon is updated to be consistent with other Cognos 8 components.
Measure	Measure		Represents quantitative data, such as revenue or quantity.

PowerPlay Web	Cognos 8 Equivalent	Icon	Comments
	Nonadditive measure		Represents a measure that cannot be summarized through addition, such as an average or a percent
Custom subset	Custom set		Custom sets are found on the **Analysis Items** tab.

The Toolbar

The toolbar, which provides access to frequently used actions in Analysis Studio, is now at the top of the window to be consistent with other Cognos 8 components.

What's New or Enhanced

PowerPlay Web	Cognos 8 Equivalent	Button	Comments
Find	Search		Because Cognos 8 supports many new data sources, searching is limited to the immediate details of the selected item to maintain performance (p. 16).
	Run		To view all of the data in the analysis, or to see how it will show in Cognos Viewer, click the desired output type (p. 47). You can use the report options to specify a title or expand **More**(p. 47).
Drill Through	Go To		Drill through capabilities have been enhanced in this release (p. 27).
	Filter		In PowerPlay Series 7, PowerPlay Windows users can define filter rules, but PowerPlay Web users cannot. Analysis Studio supports filtering by measure, name, or attribute, as well as providing flexible AND and OR operators (p. 33).
Rank (Top or Bottom option)	Top or Bottom Filter		Top or Bottom filters are extended to focus on a percentage or cumulative sum, as well as the top or bottom number of items (p. 34).
Zero Suppress	Suppress		The default suppress option is set to **Total is Null or Zero**. To see other options, from the **Settings** menu, click **Suppress**(p. 36).

PowerPlay Web	Cognos 8 Equivalent	Button	Comments
Sort	Sort		Analysis Studio offers enhanced sort capabilities. For example, you can sort nested rows and columns in different ways (p. 29).
	Subtotals		Automatic subtotals summarize the rows and columns shown, while maintaining the context of data that is filtered out or excluded (p. 39).
	Summarize		Summary calculations, such as count and standard deviation, are available (p. 40).
Calculate	Calculate		New ranking and analytical functions have been added to the many PowerPlay Web calculations, as well as the ability to create compound expressions (p. 39).
	Chart type		Additional chart types are available in Analysis Studio, such as Pareto charts, column-line charts, and point charts (p. 77).
Create custom subsets	Create custom sets		You can save data of interest as a custom set to preserve its definition, (p. 36).

About Sets

Sets (p. 21) are the basic building block of Analysis Studio. A set identifies a group of items from a single hierarchy. In PowerPlay Web, most actions apply to all the rows, all the columns, or the entire crosstab. In Analysis Studio, you can manipulate the individual sets in the crosstab.

Sets may be

- sorted by value, label, or attribute (p. 28)
- filtered by value, label, or attribute (p. 35)
- nested or stacked in the crosstab (p. 23)
- used as a dimensional filter (p. 33)
- saved as a custom set for reuse later in the analysis (p. 36)

Custom Sets

PowerPlay Series 7 version 3 introduced custom subsets to the Web. To define a custom subset, you select a dimension in the dimension viewer and then add it to the crosstab.

To extend this capability, custom sets in Analysis Studio are defined by selecting a set from the rows and columns in the crosstab. This lets you see the data first to confirm your selection, and saves the original calculations, sorting, and display properties that define the set.

For example, in PowerPlay Series 7, a custom subset based on a search expression maps to a filter by name. But in Analysis Studio, this filter rules may be extended to include measures or attributes such as dates.

Note: A popular feature in Series 7 Version 3 is the ability to select multiple rows or columns and generate a subset from this selection. In Analysis Studio, you can simply select the desired multiple items in the data tree and drag them to the crosstab.

Frequently Asked Questions

How do I learn more about Analysis Studio?

The Analysis Studio Quick Tour, found on the **Help** menu, introduces a number of Analysis Studio features. This interactive tour provides step-by-step instructions on how to use Analysis Studio to analyze data.

Can I use my Series 7 cubes in Cognos 8?

Yes. You can use cubes created with Series 7 Version 2 or higher in Cognos 8. You make cubes available in Cognos Connection by using Framework Manager to publish them.

How do I swap rows and columns?

To swap rows and columns, click the swap rows and columns button on the toolbar. To swap sets of rows or columns, you can use the interactive overview area to rearrange sets in the crosstab. You can also use the overview area to filter by context (p. 33).

How do I expand a set?

In Series 7, you expand a set by nesting together members from the same dimension. To make this capability more discoverable to new users, **Expand** is now available from the context menu of a set. Select the set, right-click and click **Expand**.

Use **Down a level** or **Up a level** to show the next level of detail and delete the preceding level in one step.

How do I get to the next or previous layer?

When a dimensional filter has been placed in the **Context** section of the overview area (p. 33), click the drop-down list and click **Go to Section**, **Next** or **Previous**.

Has Microsoft SQL Server Analysis Services (SSAS) support improved?

Analysis Studio supports many SSAS features that are unsupported in PowerPlay Series 7, such as attributes, named sets, cube roles, and actions.

Which features have not been brought forward from PowerPlay Web to Analysis Studio?

Several features have not yet been brought forward in Analysis Studio. You can accomplish some of these tasks by opening the analysis in Report Studio (p. 47), such as creating prompts from filters, specifying filters based on depth, and exception highlighting, which is called conditional formatting in Report Studio.

80/20 suppression has been replaced with Top or Bottom filtering in Analysis Studio.

Some Series 7 features that remain outstanding are forecast, accumulate, and cumulative percent of base. Cognos plans to include these features in the next major release of Cognos 8.

Appendix D: 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.

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.

Cognos 8 format	Supported in Excel	Notes
Currency	✔	
Currency Symbol	✔	
Decimal Separator		Excel does not allow changing locale-dependent formatting attributes.
Exponential Symbol		Excel does not allow changing locale-dependent formatting attributes.
Format Width		Not required. Excel automatically adjusts the width.
Group Separator		Excel does not allow changing locale-dependent formatting attributes.
Group Size	✔	
International Currency Symbol		

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	✔	

Cognos 8 format	Supported in Excel	Notes
Use Grouping	✔	
Use Scientific	✔	
Use Trailing Currency Symbol	✔	
Use Trailing Sign	✔	
AM String		Excel does not allow changing locale-dependent formatting attributes.
Calendar		Excel does not allow changing the calendar.
Date Separator Symbol	✔	
Day Name		Excel does not allow changing locale-dependent formatting attributes.
Day Short Name		Excel does not allow changing locale-dependent formatting attributes.
Decimal Delimiter Symbol		Excel does not allow changing locale-dependent formatting attributes.
Era Name		Not supported by Excel.
First Day Of Week		Not supported by Excel.
Month Name		Excel does not allow changing locale-dependent formatting attributes.
Month Short Name		Excel does not allow changing locale-dependent formatting attributes.
PM String		Excel does not allow changing locale-dependent formatting attributes.
Symbol Display Order	✔	
Time Separator Symbol	✔	
Show AmPm Symbol	✔	
Show Century	✔	
Show Clock	✔	
Show Days	✔	
Show Era		Not supported by Excel.

Cognos 8 format	Supported in Excel	Notes
Show Hours	✔	
Show Milliseconds	✔	
Show Minutes	✔	

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.

Format	Version
Excel 2000 single sheet	Microsoft Excel 2000, 2002, XP, 2003
Excel 2000	Microsoft Excel 2003
Excel 2002	Microsoft Excel 2002, XP, 2003

Cognos 8 Limitations

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.

Copying or Moving Saved Reports

If you copy or move a report saved in Content Manager, the report will not load correctly in Microsoft Excel because of problems with resolving URLs to the spreadsheets. Excel spreadsheets are stored in Content Manager as objects of type graphics.

For more information about URL links to Excel reports, see the Cognos 8 *Troubleshooting Guide*.

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.

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 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.

Chart group	Chart type	Supported in Excel	Notes
Column	Column	✔	Similar
	Column 3-D	✔	Results are better in HTML
	Stacked	✔	Similar
	Stacked 3-D	✔	Results are better in HTML
	100% stacked	✔	Similar
	100% stacked 3-D	✔	Chart is viewed from a different angle
	3-D axis	✔	Similar, but category data is presented in the reverse order
Bar	Bar	✔	Similar
	Bar 3-D	✔	Similar
	Stacked	✔	Similar
	Stacked 3-D	✔	Similar
	100% stacked	✔	Similar
	100% stacked 3-D	✔	Similar
Progressive	Column		
	Column with 3-D effect		
	Bar		

Chart group	Chart type	Supported in Excel	Notes
	Bar with 3-D effect		
Pareto	Stacked column		
	Stacked column 3-D		
	Stacked bar		
	Stacked bar 3-D		
Line	Line with markers	✔	Similar
	Line	✔	Similar
	Line 3-D	✔	Shows as a Line 3-D axis chart
	Stacked line with markers	✔	
	Stacked line	✔	Similar
	Stacked line 3-D	✔	Shows as a stacked line
	100% stacked line with markers	✔	Similar
	100% stacked line	✔	Similar
	100% stacked line 3-D	✔	Shows as 100% stacked line
	3-D Axis	✔	Similar
Pie	Pie	✔	Cognos 8 shows many types of pie charts, Microsoft Excel shows only one type
	Pie 3-D	✔	Microsoft Excel shows the pie chart at a different angle
	Donut	✔	Microsoft Excel may fill in the donut hole to accommodate extra measures
	Donut 3-D		Shows as a donut chart
Area	Area	✔	Similar
	Area 3-D	✔	Shows a smaller version of an Area 3-D axis chart

Chart group	Chart type	Supported in Excel	Notes
	Stacked area	✔	Similar
	Stacked area 3-D	✔	Shows at a different angle
	100% stacked area	✔	Similar
	100% stacked area 3-D	✔	Shows at a different angle
	3-D Axis	✔	Similar
Scatter, bubble, point	Scatter	✔	Similar
	Bubble	✔	Similar but actual details on the chart may differ slightly
	Quadrant		
	Polar		
Radar, polar	Radar with markers	✔	Similar
	Radar	✔	Returns Radar with markers
	Area radar	✔	Microsoft Excel names this chart type Filled radar
	Stacked area radar		
	Bipolar		
Combination	Combination	✔	
	Combination 3-D		
	Stacked combination	✔	
	Stacked combination 3-D		
	3-D axis		Returns Combination
Gauge	Dial gauge		

Appendix E: Charts

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.
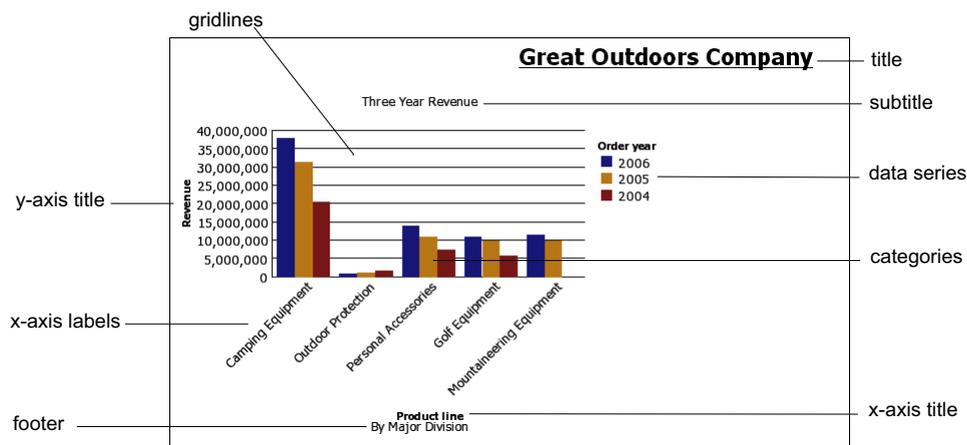
Axes

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.

Purpose	Chart Type or Configuration
Show contributions of parts to a whole	pie stacked configuration 100% stacked configuration
Show trends in time or contrast values across different categories	line area bar column
Compare groups of related information against actual values	standard configuration radar 3-D
Compare different kinds of quantitative information	column-line

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.
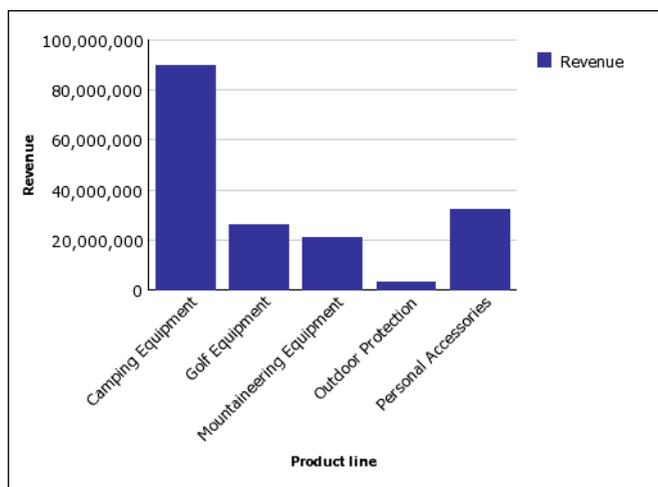
Bar Charts

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.
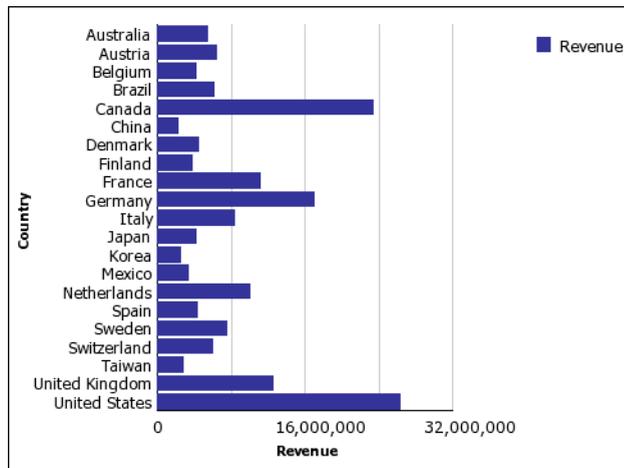
Pie Charts

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.
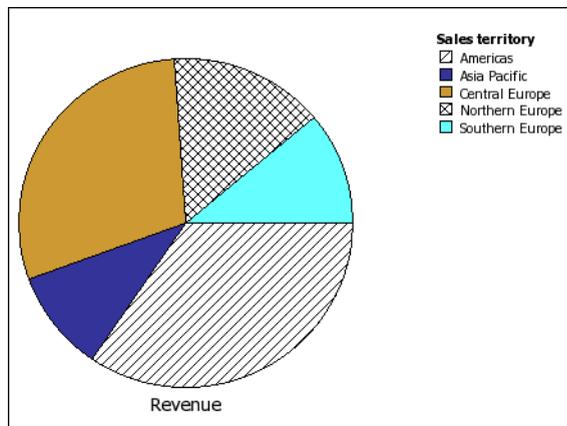
Line Charts

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.
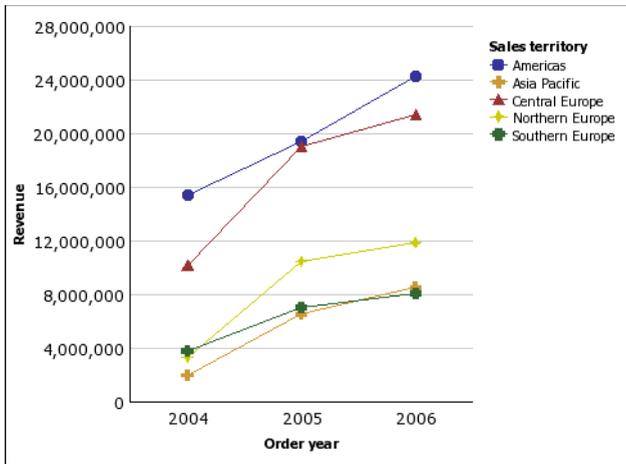
Pareto Charts

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.
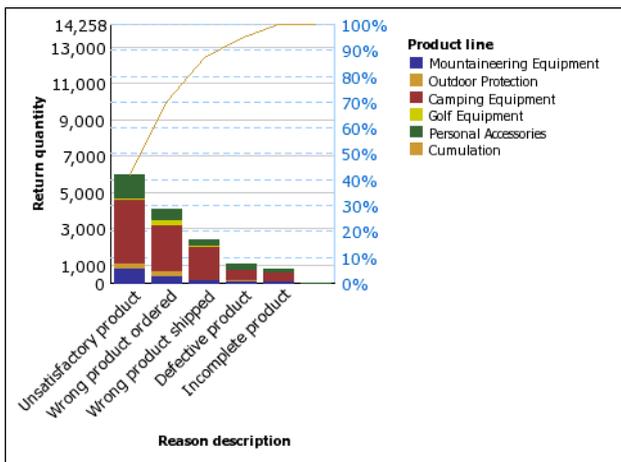
Column-Line Charts

Column line charts are useful for comparing two different measures. An additional quantitative axis appears on the right side of the chart.

This column line chart shows the quantity of units sold as a column chart and the quantity of returns as a line chart.
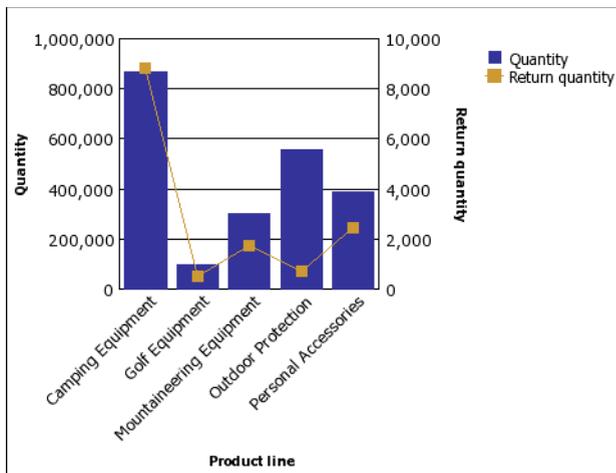
Area Charts

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.
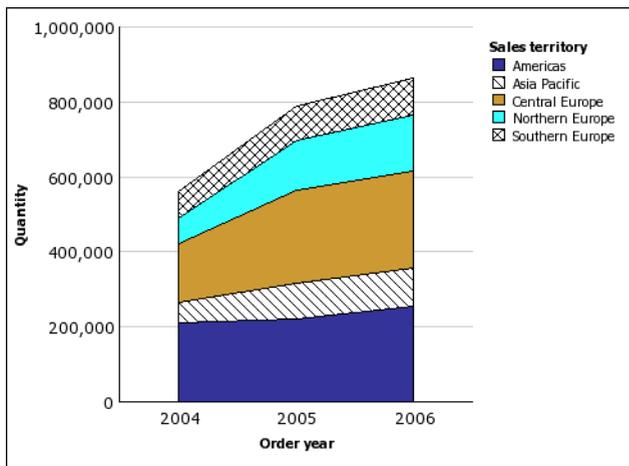
Radar Charts

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.
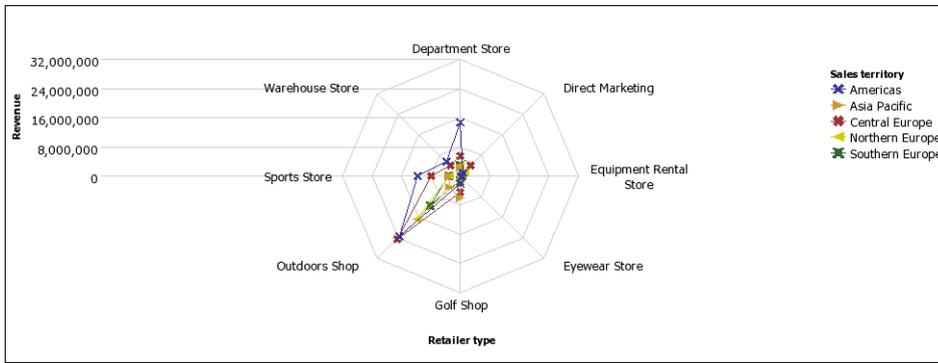
Point Charts

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.
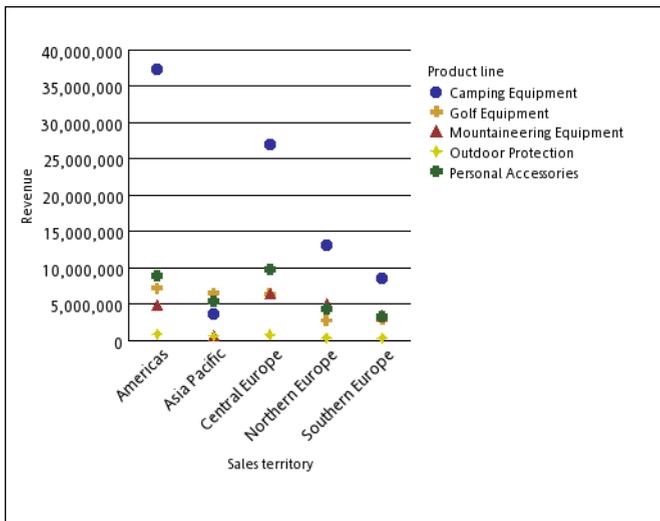
Chart Configurations

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.
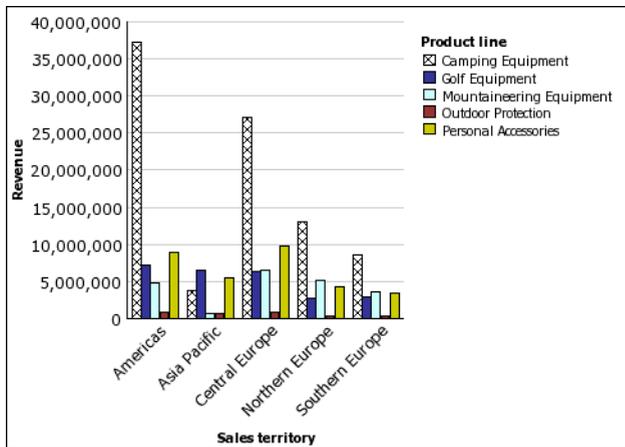
Stacked Charts

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.
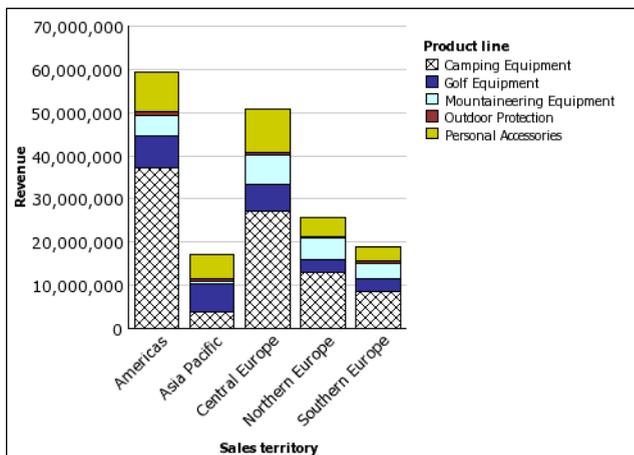
100% Stacked Charts

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.
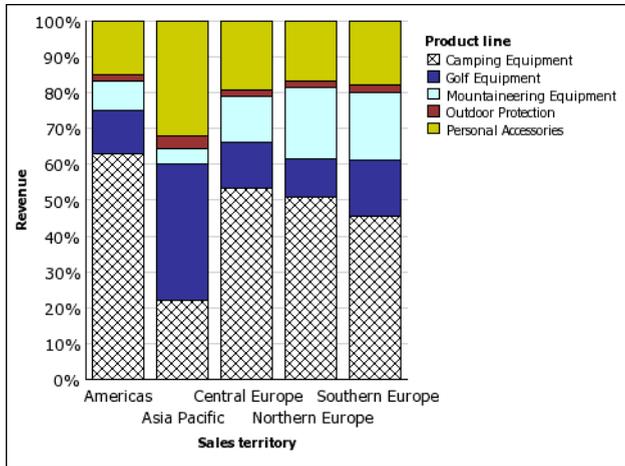
3-D Charts

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.
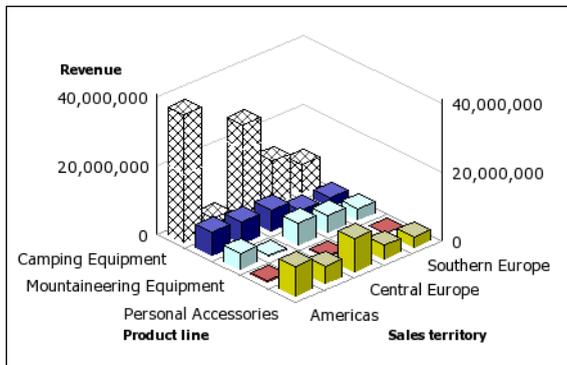
Glossary

analysis

A process where a user interacts with data to gain insight and understanding. In Cognos 8, Analysis Studio is designed to facilitate analysis.

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.

custom set

A custom set allows you to save the filter rules, calculations, and sort that defines a set created in Analysis Studio. Custom sets are listed in the Analysis Items tab and are saved as part of the analysis.

See also set, predefined set, and analysis.

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.

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.

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.

package

A subset of a model, which can be the whole model, to be made available to the Cognos 8 server.

predefined set

A set of members defined inside an OLAP data source as a list or by an expression. Cognos 8 can use predefined sets in analysis and report authoring. A predefined set is also known as a named set in Microsoft SQL Server Analysis Services.

selection-based set

A selection-based set is a collection of individual items that you have explicitly selected. The items or members may be selected from one or more levels from the same hierarchy.

set

A collection of related items or members. Members in the set may be selected by one or more filter rules or by selecting specific members.

See also specific set definitions (detail-based set, selection-based set, and so on).

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