ibi™ WebFOCUS®

Online Analytical Processing (OLAP)

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Analyzing Data in an Online Analytic Processing (OLAP) Report

Online Analytical Processing (OLAP) enables you to view and quickly analyze data in order to make critical business decisions.

Note: As of Release 8.2 Version 01, OLAP is in legacy support and will not be shown in the ibi™ WebFOCUS® interfaces and tools, by default. Existing reports that use OLAP will continue to run. If you need to enable OLAP, you can select the **Enable OLAP** check box in the Administration Console. The Enable OLAP check box is located on the Configuration tab, under Application Settings, on the Other panel. For more information, see the *ibi™ WebFOCUS® Security and Administration* manual.

We Do It Every Day: A Typical Web Query

Suppose that you own a small business in New York and are exploring a partnership with a company in Oakland, California. You need to get to a Monday morning meeting. How do you go about arranging your flight?

Most likely, you go online.

First, you check available flights on the airline that holds your frequent flyer miles. You discover that your frequent flyer carrier requires a change of planes and you would prefer a direct flight, so you look at routes and fares for other airlines.

In New York, you can get to LaGuardia, JFK, and Long Island MacArthur Airport. In California, you can fly into Oakland or San Francisco.

While you would prefer to fly out on Sunday and return Tuesday morning, you could consider a Saturday flight to California and a return flight on the red-eye Monday night, if fares and schedules are better.

You begin your search by airline and then look at options for each departure point and destination by day, time, and price.

Another approach is to start with an online consolidator, enter the times you can fly, and see what flights and fares are available.

There are a lot of variables to play with, but in a half hour, you have done your research and can make a good decision based on all available factors.

The websites you access are designed to facilitate your queries. Various menus and selection panes make it easy to pursue each line of inquiry. Required and optional information is identified for you. You can move forward down a path of choices, backtrack and start down a different path, or resume the original path with different selections.

You need to keep track of the question you want to answer, but a well-designed site makes your investigation easy. For most of us, this process has become intuitive.

The same process works when analyzing the data in an OLAP-enabled report.

Running OLAP Examples

You can run all of the examples in this chapter using OLAP-enabled published content. If the reports are not already available in your sample repository, ask your administrator to provide them for your use. There are nine reports, named olaprep1.fex through olaprep9.fex, located on the WebFOCUS Reporting Server in the \ibinccen demo directory.

Each example indicates which published content to run. After the report appears in your browser, you can perform the analytic task shown, or pursue your own line of inquiry.

Suppose that you are an analyst for Century Corporation, which manufactures electronics equipment. You need to determine which of the stores that sell your products had the highest sales in 2002, and whether there is a pattern in sales periods and/or best selling products that should be considered when planning manufacturing schedules and parts inventories.

You have created a base report that shows sales data only for 2002. You have also the OLAP enabled report to permit quick analysis of the data.

1. Run **OLAPREP1**.

   Before you begin your analysis, the OLAP report looks like the following image.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00
	eMart	Analog	97,128	21,152,262.00
		Digital	108,221	24,990,368.00
Q2	AV VideoTown	Analog	11,781	2,663,655.00
		Digital	27,377	5,928,507.00
	Audio Expert	Analog	57,944	11,868,758.00
		Digital	111,421	28,064,250.00

The quarterly information is spread out over the left most column. You can try a horizontal display to make comparison easier.

2. Drag **QUARTER** above the report.

   The report changes immediately and appears, as shown in the following image, across the top of the report with the Quantity and Line Cost of Goods Sold columns repeating for each quarter.

		QUARTER			
		Q1		Q2	
Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold	Quantity:	Line Cost Of Goods Sold
AV VideoTown	Analog	18,449	3,969,296.00	11,781	2,663,655.00
	Digital	22,206	5,109,400.00	27,377	5,928,507.00
Audio Expert	Analog	78,449	16,467,146.00	57,944	11,868,758.00
	Digital	105,983	25,092,678.00	111,421	28,064,250.00
City Video	Analog	6,287	1,315,015.00	1,405	285,323.00
	Digital	7,196	1,607,513.00	8,835	2,025,508.00
Consumer Merchandise	Analog	6,980	1,542,036.00	8,556	1,817,536.00
	Digital	14,957	3,251,090.00	15,239	3,697,782.00
TV City	Analog	19,077	3,772,119.00	15,717	3,503,862.00
	Digital	41,307	10,128,967.00	29,627	6,732,303.00
Web Sales	Analog	545	124,366.00	929	215,152.00
	Digital	829	190,201.00	1,578	347,180.00
eMart	Analog	97,128	21,152,262.00	74,737	16,789,403.00
	Digital	108,221	24,990,368.00	115,102	24,971,512.00

The store information is more compact, but it is not easier to identify the store with the best sales record, so drag QUARTER back to its original position.

3. Right-click **Line Cost of Goods Sold** and choose **Visualize**. This applies a data visualization bar graph to each value in the column.

   Note: The options available may vary, depending on your OLAP format settings.

   The display changes, as shown in the following image.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00
	eMart	Analog	97,128	21,152,262.00
		Digital	108,221	24,990,368.00
Q2	AV VideoTown	Analog	11,781	2,663,655.00
		Digital	27,377	5,928,507.00
	Audio Expert	Analog	57,944	11,868,758.00
		Digital	111,421	28,064,250.00

The bar graphs still do not reveal a trend.

4. Sort the data by highest value by either right-clicking **Line Cost of Goods Sold** and choosing **Sort by Highest**, or clicking the **Up arrow** next to Line Cost of Goods Sold.

   As shown in the following image, the report shows that Audio Expert has the highest sales in the digital product lines in Quarters 1 and 2, with eMart trailing slightly. Each value under the QUARTER, Store Name, and Product Type column is hyperlinked for more details.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q2	Audio Expert	Digital	111,421	28,064,250.00
Q1	Audio Expert	Digital	105,983	25,092,678.00
Q1	eMart	Digital	108,221	24,990,368.00
Q2	eMart	Digital	115,102	24,971,512.00
Q1	eMart	Analog	97,128	21,152,262.00
Q2	eMart	Analog	74,737	16,789,403.00
Q1	Audio Expert	Analog	78,449	16,467,146.00
Q4	eMart	Digital	72,126	14,000,951.00
Q3	eMart	Digital	66,156	13,867,709.00
Q2	Audio Expert	Analog	57,944	11,868,758.00
Q3	Audio Expert	Digital	50,076	11,210,406.00
Q4	Audio Expert	Digital	53,275	11,190,923.00
Q1	TV City	Digital	41,307	10,128,967.00
Q4	eMart	Analog	39,515	9,383,389.00
Q3	eMart	Analog	36,306	8,308,647.00
Q2	TV City	Digital	29,627	6,732,303.00
Q2	AV VideoTown	Digital	27,377	5,928,507.00
Q4	Audio Expert	Analog	25,897	5,916,936.00

5. Click **Q2** to check the monthly breakdown.

   In the monthly report, both stores recorded their highest sales in June (06), as shown in the following image.

MONTH	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
06	Audio Expert	Digital	42,473	11,119,112.00
06	eMart	Digital	45,895	10,518,058.00
05	Audio Expert	Digital	36,505	8,930,974.00
04	Audio Expert	Digital	32,443	8,014,164.00
04	eMart	Digital	35,336	7,797,162.00
05	eMart	Digital	33,871	6,656,292.00
04	eMart	Analog	27,584	6,061,370.00
05	eMart	Analog	24,253	5,728,792.00
04	Audio Expert	Analog	24,312	5,087,601.00
06	eMart	Analog	22,900	4,999,241.00

6. Click **Audio Expert** on the top line, next to MONTH 06. This filters out the other stores, showing a breakdown of Audio Expert June sales, as shown in the following image.

Product Type:	Quantity:	Line Cost Of Goods Sold
Digital	42,473	11,119,112.00
Analog	16,559	3,174,928.00

You now see information for digital and analog sales at Audio Expert. Since the significant sales for Audio Expert are in the digital area, let us see which digital products contributed to the June figures.

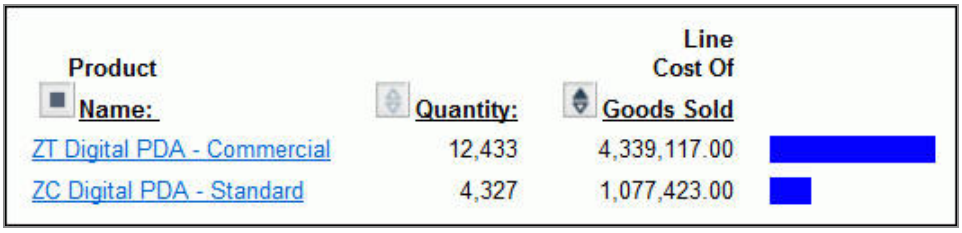
7. Click **Digital**.

   The breakdown shows clearly that PDAs drove Audio Expert digital sales.

Product Category:	Quantity:	Line Cost Of Goods Sold
PDA Devices	16,760	5,416,540.00
Camcorders	5,015	3,584,010.00
Digital Tape Recorders	12,494	862,086.00
DVD	4,087	832,993.00
CD Players	3,958	391,842.00
Cameras	159	31,641.00

8. Click **PDA Devices** to see the details.

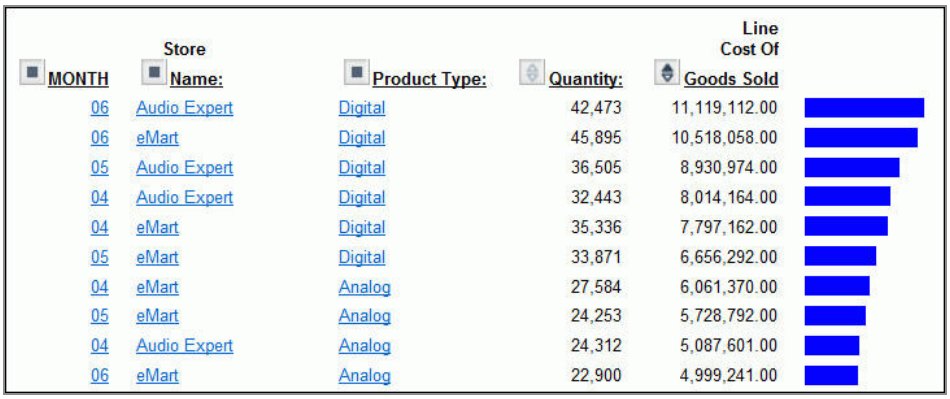
   As shown in the following image, **ZT Digital PDA - Commercial** was by far the top selling PDA in June for Audio Expert.



Product Name:	Quantity:	Line Cost Of Goods Sold
ZT Digital PDA - Commercial	12,433	4,339,117.00
ZC Digital PDA - Standard	4,327	1,077,423.00

Let us now see what drove digital sales at eMart, the second highest producer.

9. Click **Back** in your browser until you return to the following window, showing second-quarter sales for all stores.



MONTH	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
06	Audio Expert	Digital	42,473	11,119,112.00
06	eMart	Digital	45,895	10,518,058.00
05	Audio Expert	Digital	36,505	8,930,974.00
04	Audio Expert	Digital	32,443	8,014,164.00
04	eMart	Digital	35,336	7,797,162.00
05	eMart	Digital	33,871	6,656,292.00
04	eMart	Analog	27,584	6,061,370.00
05	eMart	Analog	24,253	5,728,792.00
04	Audio Expert	Analog	24,312	5,087,601.00
06	eMart	Analog	22,900	4,999,241.00

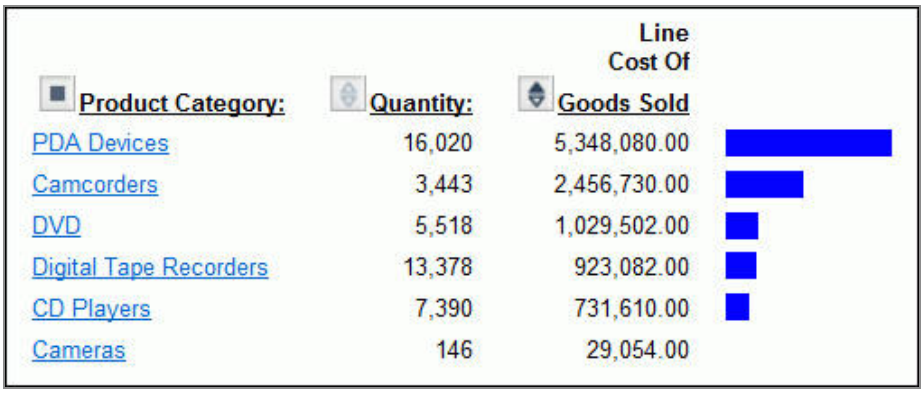
10. This time, click **eMart** next to MONTH 06, to see the June sales information for eMart.

    Once again, the Digital category leads sales, as shown in the following image.

Product Type:	Quantity:	Line Cost Of Goods Sold
Digital	45,895	10,518,058.00
Analog	22,900	4,999,241.00

11. Click **Digital**.

    PDA is the strong seller for eMart too, as shown in the following image.



Product Category:	Quantity:	Line Cost Of Goods Sold
PDA Devices	16,020	5,348,080.00
Camcorders	3,443	2,456,730.00
DVD	5,518	1,029,502.00
Digital Tape Recorders	13,378	923,082.00
CD Players	7,390	731,610.00
Cameras	146	29,054.00

12. Click **PDA Devices** to examine the models that compose these sales.

    The report shows sales figures for the two PDA models, as shown in the following image.

Product Name:	Quantity:	Line Cost Of Goods Sold	
ZT Digital PDA - Commercial	13,591	4,743,259.00	
ZC Digital PDA - Standard	2,429	604,821.00	

ZT Digital PDA - Commercial far outsells **ZC Digital PDA - Standard**.

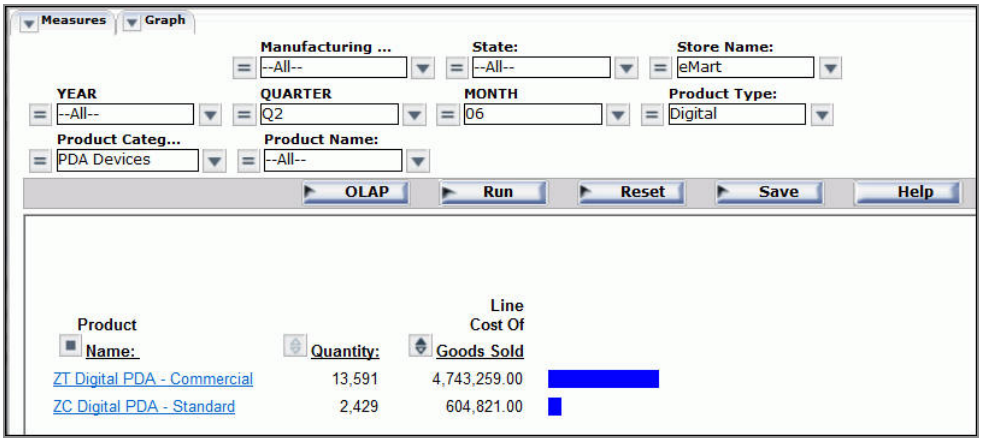
This information from the two top selling stores suggests that Century Corporation should evaluate and adjust available parts inventories for each model and consider shifting production schedules of plants to produce more Commercial units.

You have done all of your data manipulation from the report. But, because of the options you selected when OLAP-enabling this report, it is easy to expose the OLAP Selections panel where you can review the selections that are currently in effect, and make additional selections if you like. For details on OLAP set-up options, see OLAP Reporting Requirements.

13. To expose the OLAP Selections panel, right-click **Product Name** and select **Show Panel** from the menu.

    Note: The options available may vary, depending on your OLAP format settings.

    The Selections panel appears above the report, as shown in the following image.



Notice that the Store Name is eMart, Product Type is Digital, and Product Category is PDA Devices.

OLAP Reporting Requirements

OLAP reporting requires some preparation both of the data to be reported against and of the report itself. In many instances, this preparation is entirely transparent, having been done before a user encounters an OLAP report. However, for developers who are charged with OLAP-enabling data and reports and for users who wish, and are authorized, to OLAP enable their personal reports, the following summary will be useful.

OLAP-Enabling Data

Behind the scenes of any OLAP report is a hierarchical data structure. For example, a typical hierarchy of sales regions might contain a GEOGRAPHY category including the fields (in descending order) Region, State, and City. Region, the highest level in this hierarchy, would contain a list of all available regions within GEOGRAPHY. State, the second highest level in the hierarchy, would contain a list of all available states within those regions, and others.

In WebFOCUS®, the hierarchical structure is generally built into the Master File for a data source, where it becomes active for any report that uses that data source. Developers or administrators who are responsible for describing data in a Master File can use WebFOCUS language. The keyword WITHIN defines the elements in each dimension in the hierarchy.

OLAP-Enabling a Report

In addition to using OLAP-enabled data, a report must be enabled to support OLAP analysis. OLAP-enabling a report consists of specifying how a user will interact with and drill down on OLAP data.

The primary interactions occur in the report itself. In addition, you can choose to expose two supplementary tools, the OLAP Selections panel and the OLAP Control Panel.

OLAP Terminology

The following table describes OLAP terms that may be useful as you work in the OLAP tools. Some of these terms are directly reflected in the interfaces of the OLAP Selections

panel and the OLAP Control Panel. Others provide useful background information.

The first column of the following table provides the term and the second column provides the definition.

Term	Definition
Dimension	Group or list of related elements, usually structured in a hierarchy. For example, a Location dimension could include the elements Country, Region, State, and City arranged in a hierarchy where Country is the top level and City is the base level. Dimensional data usually describes the measured item.
Hierarchy	Logical parent-child structure of elements within a dimension.
Measure	Type of item that specifies the quantity of another element with which it is associated. A measure typically defines how much or how many. For example, Units, Revenue, and Gross Margin are measures in the Account dimension and specify how many units were sold, how much revenue was generated, and at what profit margin, respectively.
Pivot	Manipulating (or rotating) the view of a report by moving a field (or a group of fields) from a column to a row, or row to column.

Characteristics of an OLAP Report

An OLAP-enabled report has a number of features that distinguish it from other reports.

A basic OLAP report is shown in the following image.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00
	eMart	Analog	97,128	21,152,262.00
		Digital	108,221	24,990,368.00
Q2	AV VideoTown	Analog	11,781	2,663,655.00
		Digital	27,377	5,928,507.00
	Audio Expert	Analog	57,944	11,868,758.00
		Digital	111,421	28,064,250.00

Every OLAP user can take advantage of the analytic features that are built into the OLAP report:

- **Hyperlinks.** The values in an OLAP report are usually hyperlinks from which you can drill down to related information.

  Depending on your OLAP settings, the hyperlinks may be active for both the dimension fields (by which the report is sorted) and the measures fields (which display quantitative data), or only for the dimension fields. For related information, see OLAP Reporting Requirements.

- **Context menus.** You can right-click any column title to access a menu of options that facilitate analysis. The options vary slightly to suit the tasks associated with dimensions and measures.

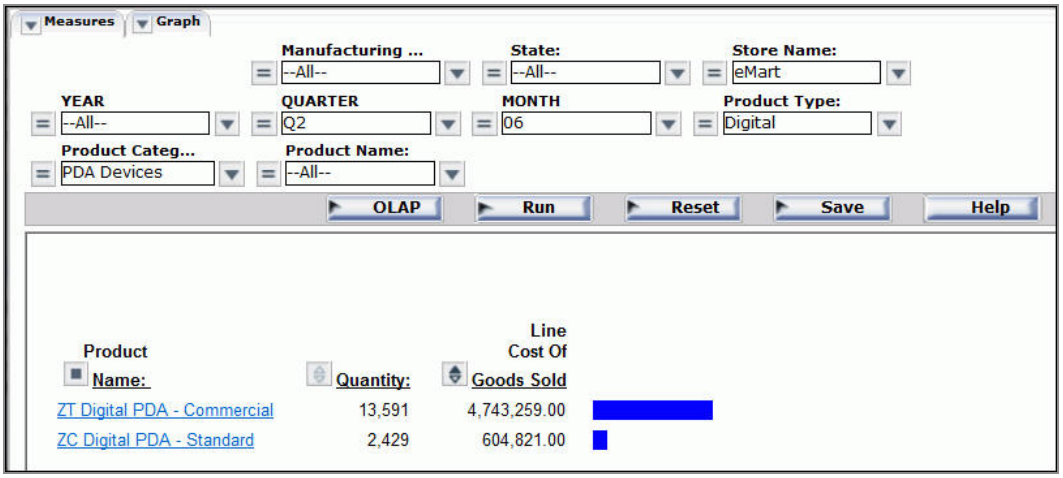
- **Sorting diamonds** **.** The measures (fields that make up the body of the report) have blue diamonds adjacent to them. You can click the top or bottom of the diamond to instantly sort data from high to low or low to high.

- **Drag-and-drop capabilities for dimensions and measures.**

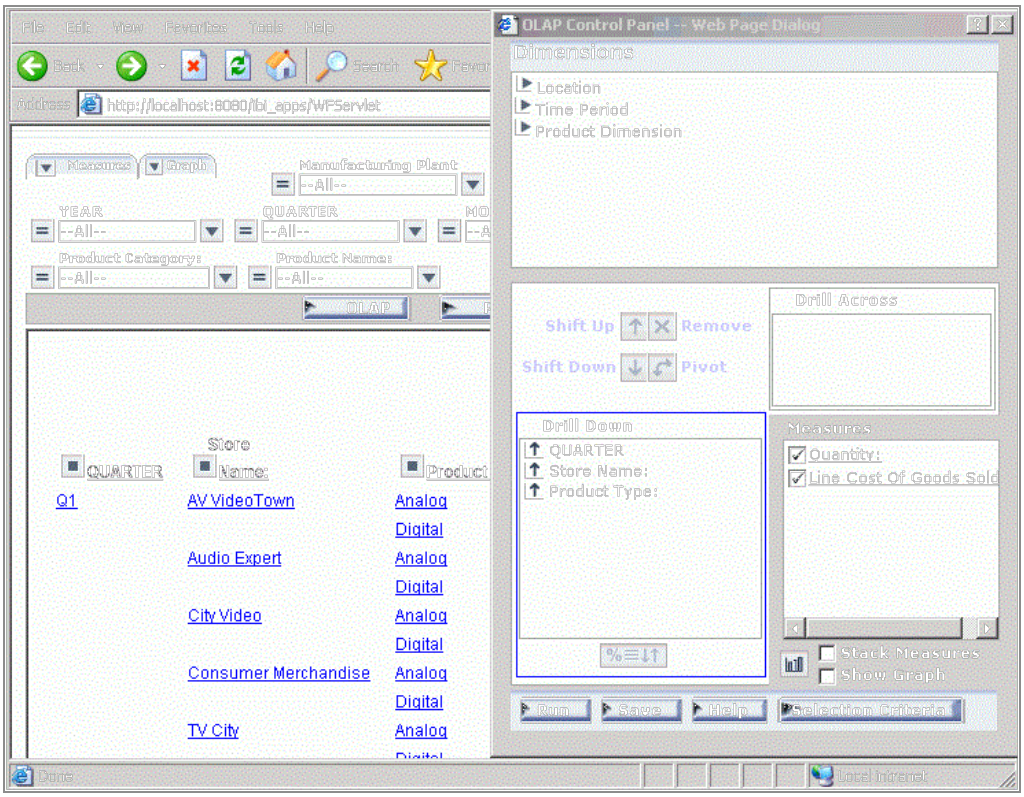
- You can drag sort fields to shift sorting from vertical (By) to horizontal (Across) or horizontal to vertical.
- You can change the order in which sorting occurs by dragging sort fields from inner to outer positions or outer to inner positions.
- You can drag measures from one position to another to affect the order in which data appears.

Beyond the features in the report itself, your OLAP options depend on the interface and drill-down settings that are in effect for a particular report. Those choices determine whether you have access to the following tools:

- **Selections Panel.** When this tool is available, a pane may appear above or below your report, as shown in the following image. For details, see Three Ways of Working With OLAP Data.



- **OLAP Control Panel.** When this tool is available, the square icons adjacent to the sort fields (By or Across) in the report, become active. You can click a square or the **OLAP** button to open the OLAP Control Panel, as shown in the following image. For details, see Three Ways of Working With OLAP Data.



Three Ways of Working With OLAP Data

There are three ways to work with OLAP data, from the report itself, from the Selections panel, and from the OLAP Control Panel. This documentation is organized to help you understand what you can do from each location and which method is most suitable and efficient for your particular OLAP settings.

The Report

You can perform a wide range of basic analytic functions from the report itself. Changes you make in the report are implemented instantly. Every OLAP user can perform these tasks:

- Sort the data in measures in either ascending (lowest value to highest) or descending order (highest value to lowest).
- Drill down on measures, dimensions, or both.

- Hide fields in the current report.
- View hidden fields in the dimensions hierarchy and add them to the report.
- Change a vertical (By) sort field to a horizontal (Across) sort field and vice versa.
- Delete sort fields.
- Add a column of small bar graphs that help you visualize trends in numeric data (measures).
- Display a graphical representation of your data in a frame above the tabular report.

For an illustration of report-powered OLAP analysis, see We Do It Every Day: A Typical Web Query.

Selections Panel

When the OLAP Selections panel is turned on, you can quickly limit the data in the report by selecting specific values for the dimensions in the hierarchy. A drop-down list is available for each dimension. You can multiselect values from one or more dimension lists to refine your report output.

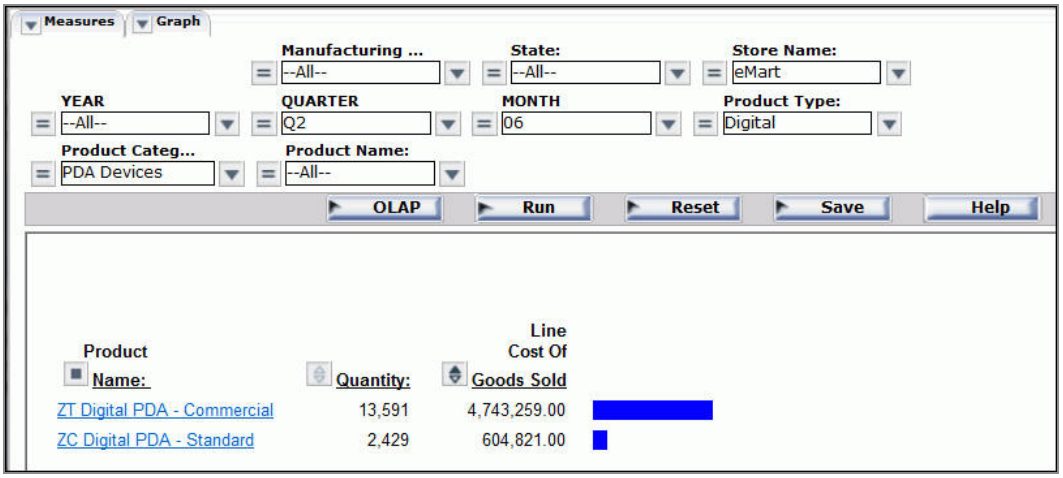
If you wish to add a dimension element to the report, you can drag it from the Selections panel into the report frame. (The cursor changes to a plus sign (+) to indicate an acceptable location.)

Each dimension has a relational operator button located to its left. This button toggles through a selection of basic numeric operators that enable you to quickly define your selection criteria. The operators are:

- Equal to.
- Not equal to.
- Less than or equal to.
- Less than but not equal to.
- Greater than or equal to.
- Greater than but not equal to.

For details, see Limiting Data.

The following image shows the Equal to operator as the selection for each dimension in the Selections panel.



The name of the dimension field appears as defined in the Master File, even if an alternate column title has been specified.

In addition, you can customize the display of the measures in your report from the Selections panel. You can click either the Measures or the Graph arrow in the upper-left corner of the pane to list the measures.

- From the Measures arrow, you can display or hide the selected measures or request a column of simple bar graphs to reveal trends.
- From the Graph arrow, you can choose the measures you wish to graph and specify one of the following basic graph types: vertical and horizontal bar, line, area graphs, or pie charts.

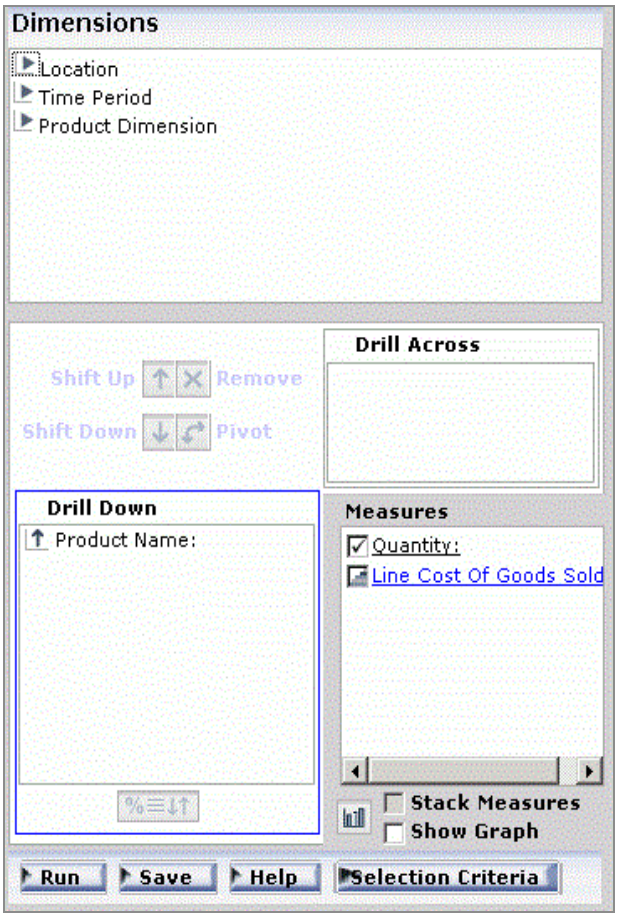
Note that the Selections panel is resizable. The controls for dimensions, measures, and graphs float as you resize the report window, so that they continue to be visible in the frame.

Five buttons appear below the Selections panel: OLAP, Run, Reset, Save, and Help.

- **OLAP.** Opens the OLAP Control Panel (OCP).
- **Run.** Executes the report with the current set of selections.
- **Reset.** Resets all the controls in the report to their previous state (that is, before the current set of selections was made and after the last execution of the report).
- **Save.** Opens a list of options from which you can save or view the document.
- **Help.** Opens the WebFOCUS online Help.

OLAP Control Panel

From the OLAP Control Panel, you can perform every analytic function available to an OLAP user, as shown in the following image.



The main window of the OLAP Control Panel contains the following components:

- **Dimensions pane.** Reflects the hierarchical structure of the data source being used by the current report. For example, the Location dimension contains the Region, State, and City fields. The Region is made up of several States, and each State contains several Cities. You click the arrow to the left of a dimension name to view the elements that comprise it. (The fields shown here are also listed in the Selections panel.)
- **Drill Down and Drill Across panes.** List the fields being used to sort the report. You can pivot a Drill Down field to a Drill Across field or a Drill Down Across field to a Drill down field, and shift their positions in the report. You can also accomplish these tasks by dragging fields within the report.

- **Measures pane.** Contains the body of your report (usually numeric fields). You can change the display mode of a measure by clicking the check box next to the measure. The options are display, hide, and show a column of associated bar graphs. This is equivalent to the options available from the Measures control in the Selections panel.

Although the most frequently used functions are available directly from an OLAP report and/or from the Selections panel, several can only be performed from the OLAP Control Panel.

OLAP Control Panel operations include:

- Sorting options for dimensions: from lowest to highest or highest to lowest (A to Z or Z to A), restricting sort field values to a specified number of either highest or lowest values, and assigning a rank number to each row in the report. For details, see Sorting Data.
- Options for grouping numeric data by tile (for example, percentile, decile, or quartile). For details, see Sorting Data.
- Defining selection criteria based on omitted or existing characters, dates, and range specifications. For details, see Limiting Data.
- Saving OLAP output in PDF and Excel formats. In the Repository path, users can also save OLAP output in a folder in which they are authorized to create private content. For details, see Saving and Displaying OLAP Reports and Graphs in Other Formats.
- Stacking multiple measures to limit the width of the report. For details, see Controlling the Display of Measures in a Report.

Drilling Down On Dimensions and Measures

You can drill down on dimensions in OLAP reports and graphs and on measures in reports. The settings activate the required hyperlinks:

- **Dimensions.** Enables automatic drill downs on dimensions in reports and graphs.
- **Dimensions and Measures.** Enables automatic drill downs on dimensions in both reports and graphs and on measures in reports.
- **None.** Disables automatic drill downs. This is the default.

Drilling Down on Dimensions in a Report

This report you are about to run uses data from a hierarchy that contains three dimensions, each of which has three elements. The report is sorted by the specified field from each dimension. The following table outlines three dimensions, Time Period, Location, and Product, each containing three elements.

Time Period	**Location**	**Product**
Year	Manufacturing Plant	**PRODTYPE**
Quarter	State	PRODCAT
Month	**Store Name**	PRODNAME

The report will show data at different levels in each dimension. Quarter is down one level in its dimension, Store Name is at the lowest level in its dimension, Product Type is the top level in its dimension. This determines how much farther you can drill down within each dimension. If you drill down on a value of a Quarter, the report shows information broken down by Month within that Quarter. The Quarter column itself will no longer appear.

1. Run **OLAPREP2**.

   In this quarterly report, drill-down hyperlinks are active for both dimensions and measures.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00
	eMart	Analog	97,128	21,152,262.00
		Digital	108,221	24,990,368.00
Q2	AV VideoTown	Analog	11,781	2,663,655.00
		Digital	27,377	5,928,507.00
	Audio Expert	Analog	57,944	11,868,758.00
		Digital	111,421	28,064,250.00

2. Click **Q1** in the quarterly report to see a monthly report, as shown in the following image.

MONTH	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
01	AV VideoTown	Analog	147	35,280.00
		Digital	1,426	299,504.00
	Audio Expert	Analog	11,061	2,281,228.00
		Digital	14,062	3,432,741.00
	City Video	Analog	1,097	199,968.00
		Digital	1,382	339,594.00
	Consumer Merchandise	Analog	1,801	369,868.00
		Digital	3,580	800,913.00
	TV City	Analog	3,257	683,014.00
		Digital	6,281	1,470,194.00
	Web Sales	Analog	86	18,889.00
		Digital	136	33,877.00
	eMart	Analog	6,407	1,282,935.00
		Digital	10,737	2,632,355.00
02	AV VideoTown	Analog	9,124	1,982,103.00
		Digital	10,823	2,331,172.00
	Audio Expert	Analog	34,413	7,254,037.00

Since Month is the bottom level in its dimension, if you drill down on a month value, you will no longer see the month column. However, you will see the data that relates to the selected month in subsequent columns.

3. Click **01** in the MONTH column to see details for January.

   As shown in the following image, the January report displays Product Type, Quantity, and Line Cost Of Goods Sold for each store.

Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
AV VideoTown	Analog	147	35,280.00
	Digital	1,426	299,504.00
Audio Expert	Analog	11,061	2,281,228.00
	Digital	14,062	3,432,741.00
City Video	Analog	1,097	199,968.00
	Digital	1,382	339,594.00
Consumer Merchandise	Analog	1,801	369,868.00
	Digital	3,580	800,913.00
TV City	Analog	3,257	683,014.00
	Digital	6,281	1,470,194.00
Web Sales	Analog	86	18,889.00
	Digital	136	33,877.00
eMart	Analog	6,407	1,282,935.00
	Digital	10,737	2,632,355.00

Next, see what happens when you drill down in the Location dimension (in this case, on a value of Store Name in the second column of the report). When you drill down on a dimension column other than the first, the output is affected to the right and left of that column.

4. Click **Back** in your browser to return to the monthly report.

MONTH	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
01	AV VideoTown	Analog	147	35,280.00
		Digital	1,426	299,504.00
	Audio Expert	Analog	11,061	2,281,228.00
		Digital	14,062	3,432,741.00
	City Video	Analog	1,097	199,968.00
		Digital	1,382	339,594.00
	Consumer Merchandise	Analog	1,801	369,868.00
		Digital	3,580	800,913.00
	TV City	Analog	3,257	683,014.00
		Digital	6,281	1,470,194.00
	Web Sales	Analog	86	18,889.00
		Digital	136	33,877.00
	eMart	Analog	6,407	1,282,935.00
		Digital	10,737	2,632,355.00
02	AV VideoTown	Analog	9,124	1,982,103.00
		Digital	10,823	2,331,172.00
	Audio Expert	Analog	34,413	7,254,037.00

5. Click **AV VideoTown** in the second column.

   Since Store Name is the lowest level in its dimension, the Store Name column no longer appears, nor does the Time Period column to its left. Nevertheless, both the Store Name (AV VideoTown) and the current time period (January) set the context for the information you see, which now consists of types of Product Type, Quantity, and Line Cost of Goods Sold for AV VideoTown in January, as shown in the following image.

Product Type:	Quantity:	Line Cost Of Goods Sold
Analog	147	35,280.00
Digital	1,426	299,504.00

Drill Down on Measures in Reports

By drilling down on a measure, you expose the next level of detailed information associated with that measure for each displayed dimension in the hierarchy. In other words, when you drill down on a measure, the current dimension is used as a limiting criterion. The rest of the hierarchy is then expanded based on that limitation.

Remember that a measure contains quantitative information about fields in each dimension.

In this example, Quantity and Line Cost of Goods Sold provide data about products at particular stores during particular time periods.

1. Run **OLAPREP2**.

   Notice that quantity of sales for all digital products at AV VideoTown in the first quarter of the year is 22,206. You want to find out how much each digital product contributed to the total quantity.

2. Click **22,206** under Quantity.

   As shown in the following image, the report now displays the total quantity for digital products sold at AV VideoTown broken out by MONTH, Product Category, and Product Name. Notice that the Store Name no longer appears. Since it is the lowest level of the Location dimension, there is no lower level of detail.

MONTH	Product Category:	Product Name:	Quantity:	Line Cost Of Goods Sold
01	DVD	Combo Player - 4 Hd VCR + DVD	147	42,483.00
		DVD Upgrade Unit for Cent. VCR	147	20,433.00
	Digital Tape Recorders	R5 Micro Digital Tape Recorder	566	39,054.00
	PDA Devices	ZT Digital PDA - Commercial	566	197,534.00
02	CD Players	QX Portable CD Player	2,161	213,939.00
	Camcorders	650DL Digital Camcorder 150 X	545	386,950.00
	DVD	Combo Player - 4 Hd VCR + DVD	624	180,336.00
		DVD Upgrade Unit for Cent. VCR	621	86,319.00
	Digital Tape Recorders	R5 Micro Digital Tape Recorder	2,815	194,235.00
	PDA Devices	ZC Digital PDA - Standard	1,465	364,785.00

Since all relevant information is now visible, no further drill downs are possible and the measure is no longer represented as a hyperlink.

Next, verify this behavior at another level in the hierarchy.

3. Click **Back** in your browser to return to the original report.
4. Click **Q1** to see the monthly breakdown for that quarter.
5. Click **AV VideoTown**.

   You are now looking at Product Type sold, Quantity sold, and Line Cost Of Goods Sold at AV VideoTown.

Product Type:	Quantity:	Line Cost Of Goods Sold
Analog	147	35,280.00
Digital	1,426	299,504.00

6. Drill down on **1,426** under Quantity.

   Note: When you drill down on a measure value, results may differ depending on the combination of sort fields in the report. The examples that follow show several variations.

   Product Type: Digital serves as the limiting criterion. Therefore, the expanded hierarchy shows the next level of detail for each digital product, as shown in the following image.

Product Category:	Product Name:	Quantity:	Line Cost Of Goods Sold
DVD	Combo Player - 4 Hd VCR + DVD	147	42,483.00
	DVD Upgrade Unit for Cent. VCR	147	20,433.00
Digital Tape Recorders	R5 Micro Digital Tape Recorder	566	39,054.00
PDA Devices	ZT Digital PDA - Commercial	566	197,534.00

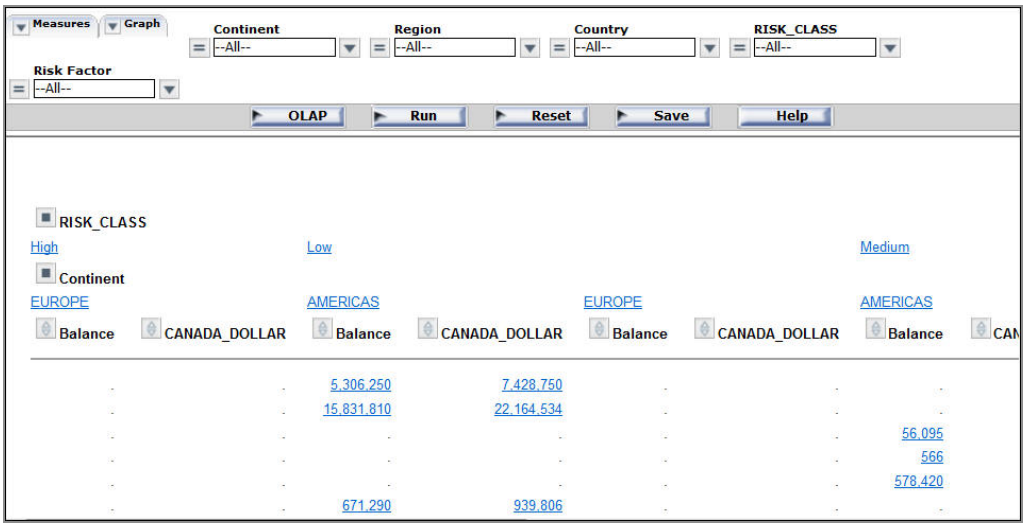
   This level is composed of digital product categories and the names of the products in each category. The report displays the detailed data for each element in the Product Type dimension (in this case, the product categories and product names that compose the quantity figure of 1,426). The total Quantity and the Line Cost Of Goods Sold are now broken down by product.

Drilling Down on a Measure in a Report with ACROSS Fields

When you drill down on a measure in a report with at least one dimension Across field and no By fields, all Across fields are removed from the report and all of the dimension elements under the removed Across fields become By fields from left to right in the resulting report. This convention ensures that the maximum number of Across values supported by WebFOCUS is not exceeded.

The values that appear for the new By fields are controlled by internally generated selection criteria. The measure values in the resulting report depend on the values of the new By fields.

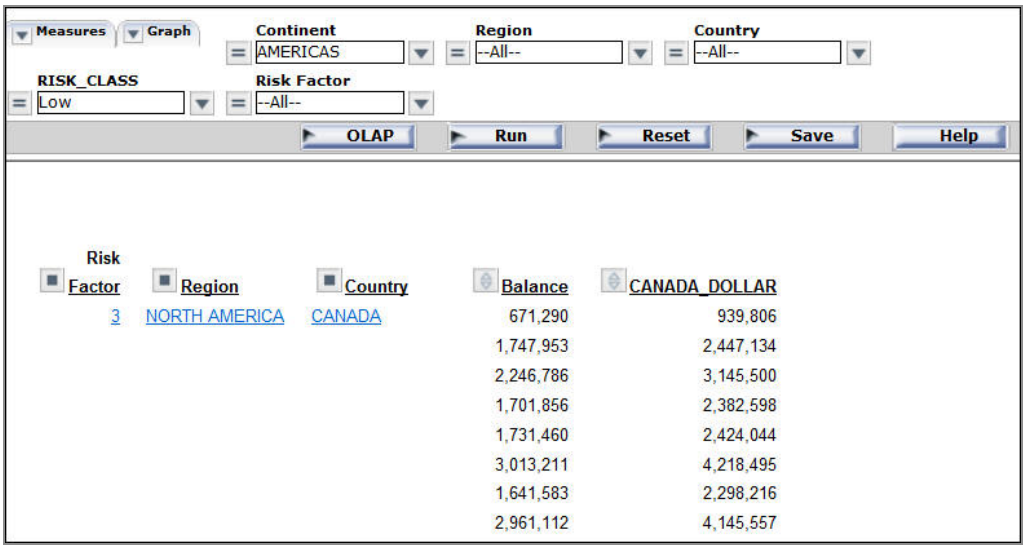
1. Run **OLAPREP3**.



In the report, RISK_CLASS and Continent are dimension Across fields on which you can drill down.

2. Click the Balance value **671,290** under RISK_CLASS Low and Continent AMERICAS.

   The report now looks like the following image.



In the new report, the RISK_CLASS and Continent fields are removed based on two internally generated criteria: IF RISK_CLASS EQ 'Low' and IF Continent EQ 'AMERICAS'.

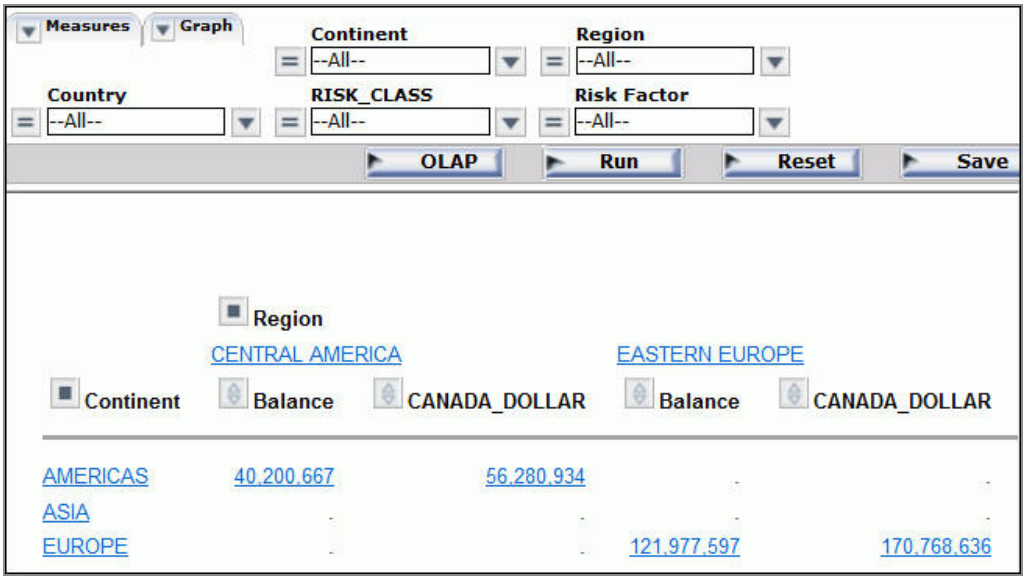
The only dimension element under RISK_CLASS is Risk_Factor. The dimension elements under Continent are Region and Country. These become By fields in the new report, from left to right. The data displayed for the measures in the resulting

report are those that satisfy the values in the current By fields.

Drill Down on a Measure When BY/ACROSS Fields Are Under the Same Dimension

When you drill down on a measure in a report with at least one By and one Across dimension field under the same root dimension, both the By and Across fields are hidden and the subordinate elements in the same dimension become By fields in the new report. In effect, the report is filtered based on the values of the dimensions. As a result, the sorting controlled by both hidden and visible dimensions remains in effect.

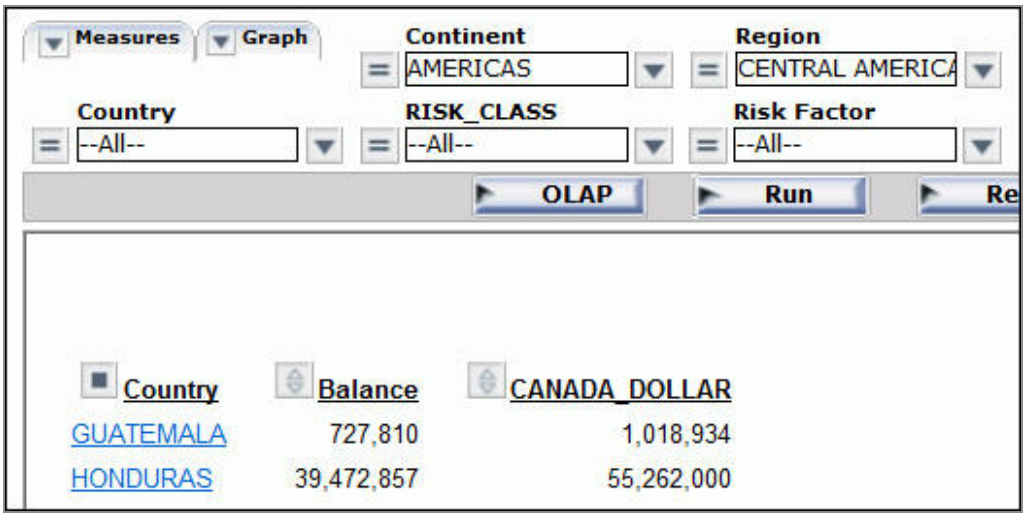
1. Run **OLAPREP4**.



   In the report, Continent is a By field and Region is an Across field. Both are in the Geographic Area dimension.

2. Click the CANADA_DOLLAR value of **56,280,934** in the Continent row for AMERICAS under the Region CENTRAL AMERICA.

   The report now looks like the following image.



In the new report, data is filtered based on the internally generated criteria: IF Continent EQ 'AMERICAS' and IF REGION EQ 'CENTRAL AMERICA.' (Continent and Region are no longer visible.)

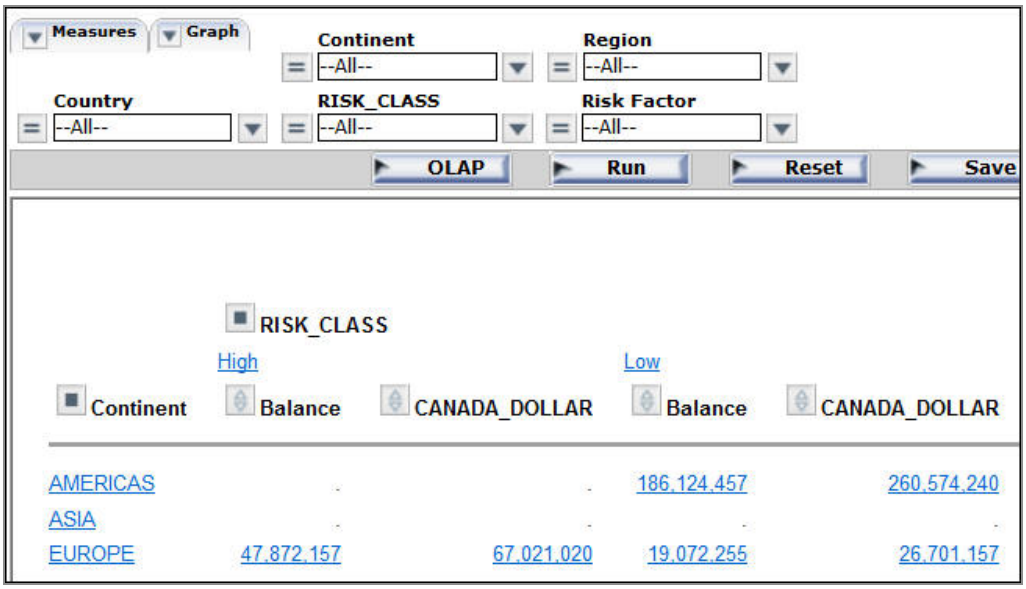
REGION is replaced by the last element in the Geographic Area dimension, Country, which becomes the controlling By field in the report. The data displayed for the measures are those that satisfy the values in the current By field.

Drill Down on a Measure When BY/ACROSS Fields Are Under Different Root Dimensions

When you drill down on a measure in a report with at least one By and one Across dimension field from different root dimensions, the By fields are broken down to their last dimension level, then the Across fields are broken down.

The original By and Across fields are removed. The dimension elements under the removed By fields become the first set of By fields from left to right. The dimension elements under the removed Across fields follow the first set of By fields from left to right.

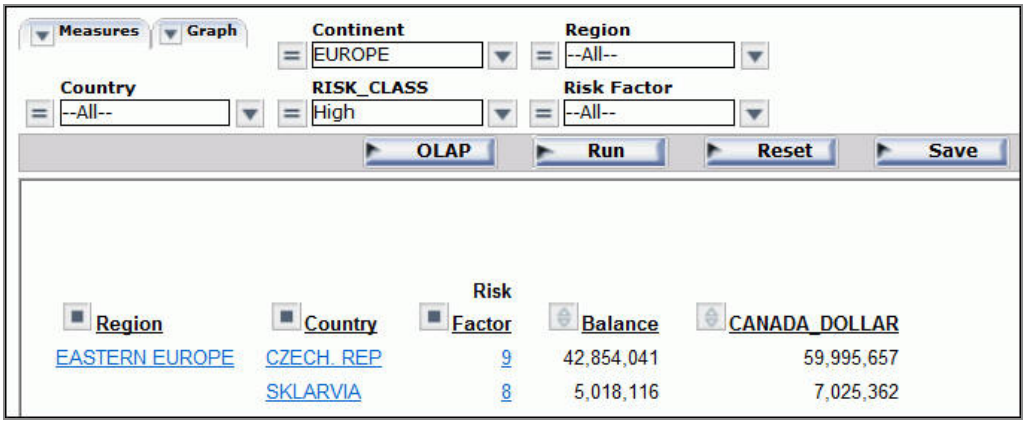
1. Run **OLAPREP5**.



In the report, Continent is a By field from the Geographic Area dimension and RISK_CLASS is an Across field from the Risk dimension.

2. Click the CANADA_DOLLAR value of **67,021,020** in the Continent row for EUROPE under the RISK_CLASS High.

   The report looks like the following image.



In the new report, the Continent and RISK_CLASS fields are removed based on the internally generated criteria: IF CONTINENT EQ 'EUROPE' and IF RISK_CLASS EQ 'High'.

The By field (Continent) is broken down to its last dimension element. Then, the Across field (RISK_CLASS) is broken down to its last dimension level. The resulting By fields in the report, from left to right, are Region, Country, and Risk Factor. The data displayed for the measures satisfy the values in the current By fields.

Sorting Data

You can sort the data in an OLAP report based on the values of dimensions in the hierarchy and/or the values of the quantitative measures that constitute the body of the report. Sorting options vary depending on the nature of the data being sorted. For details, see Sorting Data and Sorting Data.

You can also group numeric data into any number of tiles (percentiles, quartiles, deciles, and so on). See Sorting Data.

Sorting Measures

You can apply aggregation and sorting simultaneously to a numeric measure in an OLAP report, and sort the data from high to low (descending order) or from low to high (ascending order). All other columns are sorted correspondingly.

For the measure being sorted, you can restrict the report to a specified number of highest values (when sorting high to low) or lowest values (when sorting from low to high).

When you sort a measure, any subtotals, subheadings, or subfootings in the report are automatically suppressed since these elements relate to a specific sort field and are not meaningful when the report is resorted by the values in a measure column. For an illustration, see Performing a Calculation on a Measure.

Note: Sorting by measures is not available in a report in which measures have been stacked. See Controlling the Display of Measures in a Report.

Sort Measures High to Low or Low to High in an OLAP Report

To sort the values of a measure from high to low:

- Click the diamond button.

  or

- Right-click the measure and select **Sort By Highest** from the menu.

The report runs automatically. The highest value is now first in the column. The top of the diamond button becomes solid blue to indicate the current sort direction.

To sort the values of a measure from low to high:

- Click the bottom half of the diamond button.

  or

- Right-click the measure and select **Sort By Lowest** from the menu.

The lowest value is first in the column. The bottom of the diamond button becomes solid blue.

Tip: After a measure has been sorted once, clicking the upper or lower half of the diamond button inverts the sort order of that measure. Place your mouse pointer over either half of the diamond to see a message that indicates the next sort order that will occur if you click the diamond.

Sorting a Measure From High to Low in the Report

1. Run **OLAPREP2**.

   The OLAP report shows sales information sorted by Quarter, Store, and Product Type.

   You are interested in seeing where the greatest quantity of goods has been sold.

2. Click the top half of the diamond button next to the Quantity measure to sort the values from high to low.

   As shown in the following image, the report now displays data values for the Quantity measure in descending order. The top half of the diamond next to Quantity is blue and solid to indicate the current sort order of the measure. This is now the controlling sort in the report. All other values are reordered correspondingly.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q2	eMart	Digital	115,102	24,971,512.00
Q2	Audio Expert	Digital	111,421	28,064,250.00
Q1	eMart	Digital	108,221	24,990,368.00
Q1	Audio Expert	Digital	105,983	25,092,678.00
Q1	eMart	Analog	97,128	21,152,262.00
Q1	Audio Expert	Analog	78,449	16,467,146.00
Q2	eMart	Analog	74,737	16,789,403.00
Q4	eMart	Digital	72,126	14,000,951.00
Q3	eMart	Digital	66,156	13,867,709.00
Q2	Audio Expert	Analog	57,944	11,868,758.00
Q4	Audio Expert	Digital	53,275	11,190,923.00
Q3	Audio Expert	Digital	50,076	11,210,406.00
Q1	TV City	Digital	41,307	10,128,967.00
Q4	eMart	Analog	39,515	9,383,389.00
Q3	eMart	Analog	36,306	8,308,647.00
Q2	TV City	Digital	29,627	6,732,303.00
Q2	AV VideoTown	Digital	27,377	5,928,507.00

Tip: To invert the sort order, click the diamond button again.

Sort Measures High to Low or Low to High From the OLAP Control Panel

Procedure

1. Open the OLAP Control Panel.
2. Click a measure name in the Measures pane in the upper portion of the OLAP Control Panel to open the sort options pane.

   Do not click the **Stack Measures** check box, which controls the display of a measure, not its sorting.
3. Select the **Sort** check box. This setting is required to apply sorting specifications to the selected measure.
4. Select the **High to Low** or **Low to High** option button to specify the sort order you wish to apply. The default sort order is high to low.

5. Click **Ok**.

   The sort pane is replaced by the Measures pane, where the measure becomes blue to indicate that sorting specifications have been defined.

6. Click **Run** to display the report with sorting applied to the selected measure.

   The diamond button next to the sorted measure changes to reflect the sort order. If the sort order is high to low, the top half of the diamond is solid blue. If the sort order is low to high, the bottom half is solid blue.

Result

Note:

- Report execution is automatic when you sort a measure in an OLAP report. However, if the OLAP Control Panel is open, all current changes in the OLAP Control Panel are applied.
- If an OLAP request contains a horizontal (Across) sort field, the measures appear several times in the report, once for each Across value. If you apply sorting to a measure, the sort is performed on the first column occurrence of the measure, and reflected in all subsequent instances. The appropriate half of the diamond button becomes solid only for the first instance. Any additional sorting you wish to perform must be done from the first occurrence of the measure.

View a Subset of Data for Sorted Measures

You can select to view only a subset of the total number of records in your report.

Procedure

1. Open the OLAP Control Panel.
2. Click a measure name in the Measures pane to open the sort options pane.

   Do not click the **Stack Measures** check box, which controls the display of a measure, not its sorting.

3. Verify that the **Sort** check box is selected. (This setting is required to apply sorting specifications to a measure.)
4. Select the **Rank** check box, then specify the number of sort field values to be included in the report.

- Use the spin controls located to the right of the word Highest or Lowest to increase or decrease the number of sort fields.

  or

- Position the cursor in the input pane and type a number.

The default number of sort field values is 5.

5. Click **Ok**.

   The sort pane is replaced by the Measures pane, where the measure becomes blue to indicate that sorting specifications have been defined.

6. Click **Run** to display the report with the designated number of sorted values.

Displaying a Subset of Sorted Data for a Measure

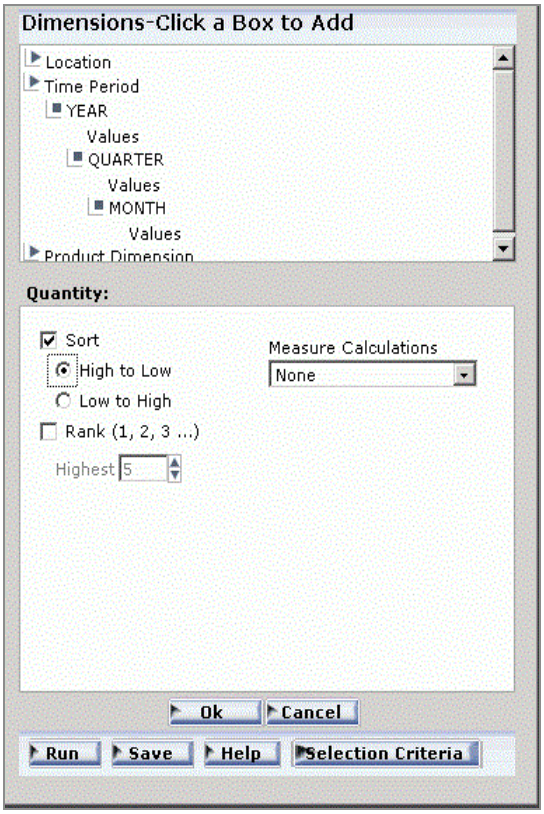
1. Run **OLAPREP2**.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00
	eMart	Analog	97,128	21,152,262.00
		Digital	108,221	24,990,368.00
Q2	AV VideoTown	Analog	11,781	2,663,655.00
		Digital	27,377	5,928,507.00
	Audio Expert	Analog	57,944	11,868,758.00
		Digital	111,421	28,064,250.00

The report shows sales information sorted by quarter, store, and Product Type.

2. Click the square icon next to QUARTER to open the OLAP Control Panel (notice that the original report is open on the left).
3. Click **Quantity** in the Measures pane.

   The sort pane opens, as shown in the following image.



4. If not already selected, click the **Sort** check box.

   High to Low sorting is selected by default.
5. Click the **Rank** check box.

   Because the report is being sorted from high to low, you can indicate the number of values you wish to see, beginning with the highest.
6. Specify Highest **4**.
7. Click **Ok**.

   The main OLAP Control Panel window appears. In the Measures pane the Quantity measure is blue, indicating that sorting specifications have been defined.
8. Click **Run** at the bottom of the OLAP Control Panel.

As shown in the following image, the report now displays Quantity sorted from high to low with the highest four values appearing.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q2	eMart	Digital	115,102	24,971,512.00
Q2	Audio Expert	Digital	111,421	28,064,250.00
Q1	eMart	Digital	108,221	24,990,368.00
Q1	Audio Expert	Digital	105,983	25,092,678.00

Remove Sorting Criteria for a Measure

You can remove sorting specifications for a measure whether the measure appears or is hidden.

Procedure

1. Open the OLAP Control Panel.
2. In the Measures pane, click the measure for which you want to remove sorting specifications.
3. Clear the **Sort** check box.
4. Click **Ok**.

Sorting Dimensions

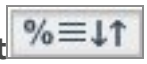
There are several ways in which you can sort dimensions in an OLAP hierarchy:

- Control the order in which data is sorted: ascending or descending.
- Restrict sort field values to a specified number of either highest or lowest values.
- Assign a rank number to each row in a vertically sorted report.
- Shift the positions of sort fields in the report. For example, you can change from sorting by State and then by Product to sorting by Product and then by State.
- Pivot a vertical (By) sort field to make it a horizontal (Across) sort field and vice versa.

- Hide a sort field in the report while retaining the sorting associated with it. For example, you can sort data by quarters without showing the Quarter column.
- Group numeric data in tiles (for example, percentile, decile, and so on).

Change Sort Order for a Dimension

Procedure

1. Open the OLAP Control Panel.
2. Select a field from the Drill Down or Drill Across pane.
3. Click the **Sort**  button.

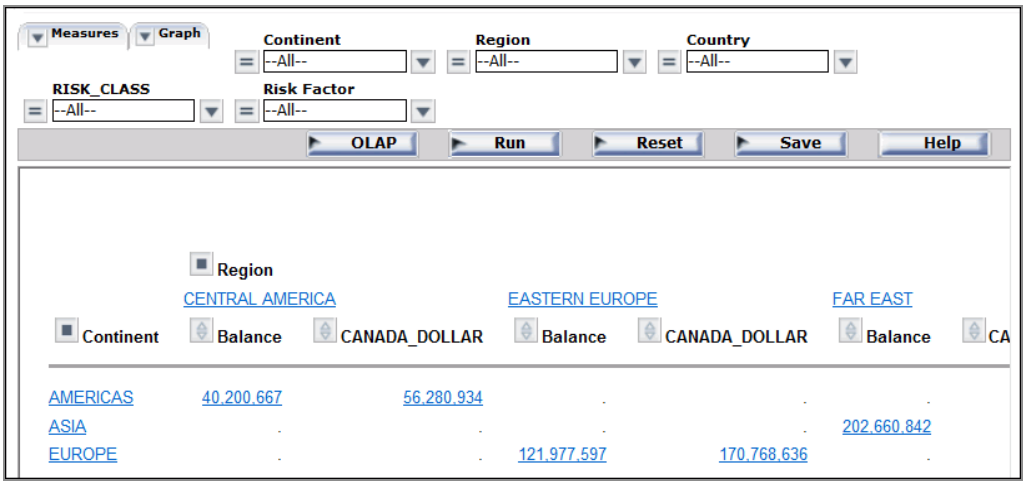
   The sort pane opens.
4. Under Sort Order, choose the **Low to High** or **High to Low** option button (Low to High is the default for a dimension).
5. Click **Ok**.

   The main OLAP Control Panel window reopens.
6. Click **Run** to execute the report.

Reversing the Sort Order of a Dimension

1. Run **OLAPREP4**.

   In the report, the values of both sort fields (Continent and Region) are sorted from low to high (A to Z), as shown in the following image.

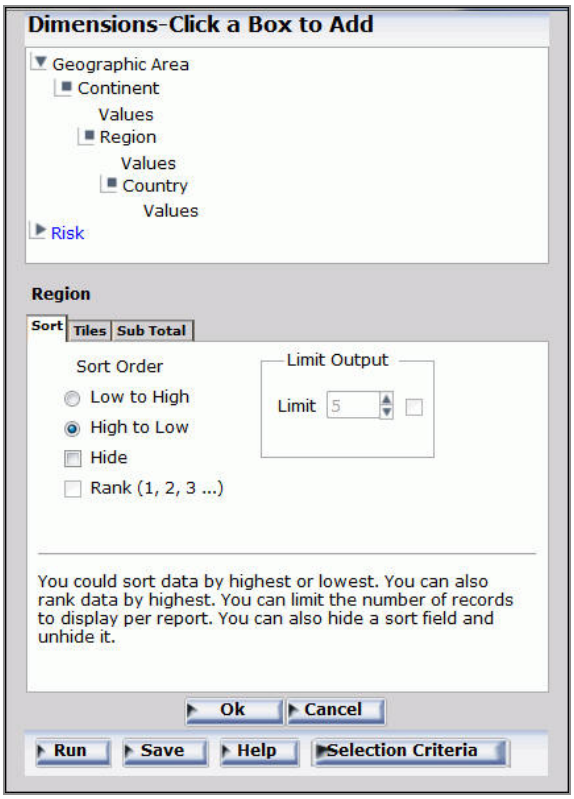


2. To sort the report in reverse alphabetical order, click the **OLAP** button on the band below the Selections panel to open the OLAP Control Panel.

3. Select **Region** in the Drill Across pane and click the **Sort** button.

   The sort pane opens.

4. Under Sort Order, choose the **High to Low** option button, as shown in the following image, on the OLAP Control Panel.



5. Click **Ok**.

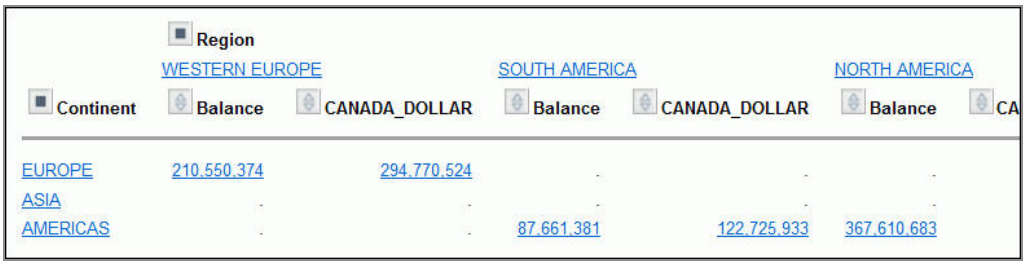
   The main OLAP Control Panel window reopens.

6. Repeat the process for Continent. Select **Continent** in the Drill Down pane and click the **Sort** button. When the sort pane opens, select the **High to Low** option button and click **Ok**.

   The main OLAP Control Panel window opens.

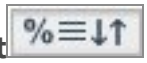
7. Click **Run**.

   Both dimensions are now sorted in reverse alphabetical order (Z to A), as shown in the following image.

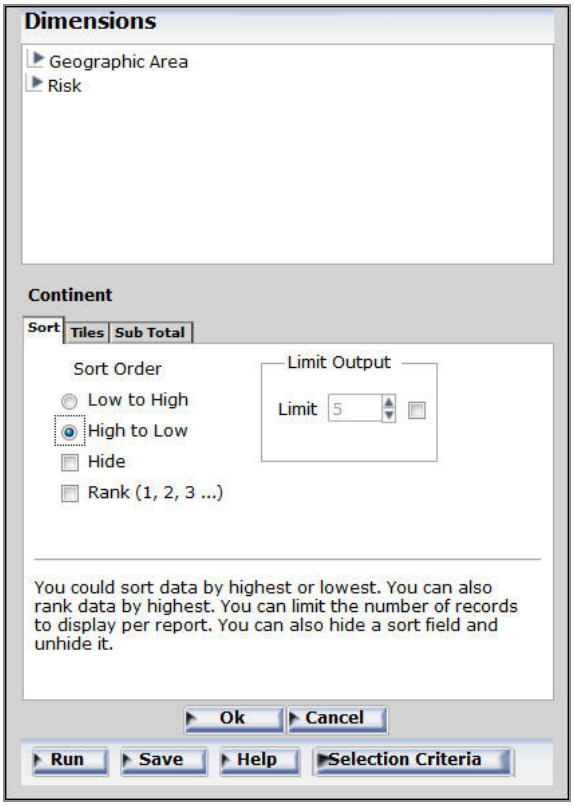


Restrict the Display of Sort Values

Procedure

1. Open the OLAP Control Panel.
2. Select a field from the Drill Down pane.
3. Click the **Sort**  button.

   The sorting pane opens.
4. Under Sort Order, choose the **Low to High** or **High to Low** option button, as shown in the following image, on the OLAP Control Panel.

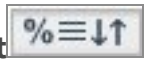


5. Under Limit Output, click the **Limit** check box and choose or type a value in the input area.
6. Click **Ok**.

   The main OLAP Control Panel window reopens.
7. Click **Run** to execute your report.

Rank Rows in a Vertically Sorted Report

Procedure

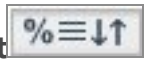
1. Open the OLAP Control Panel.
2. Select a field from the Drill Down pane.
3. Click the **Sort**  button.

   The sort pane opens.
4. Under Sort Order, choose the **Low to High** or **High to Low** option button.
5. Click the **Rank** check box.
6. If you wish to place a restriction on the number of sort field values to rank, click the **Limit** check box, and choose or type a value in the input area.
   - If the **High to Low** option button is selected, you can rank a specified number of highest values.
   - If the **Low to High** option button is selected, you can rank a specified number of lowest values.
7. Click **Ok**.

   The main OLAP Control Panel window reopens.
8. Click **Run** to execute your report.

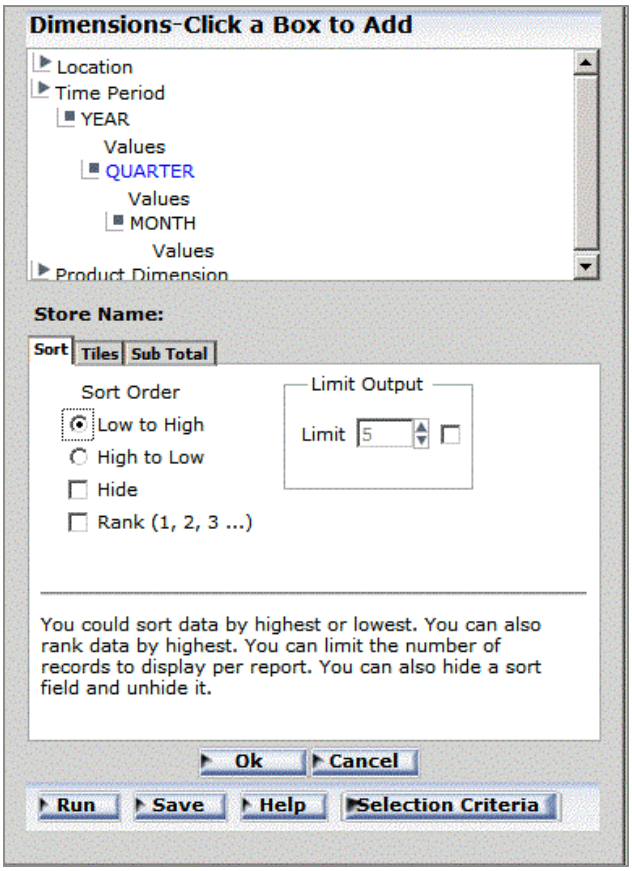
Ranking and Restricting the Number of Sort Values

1. Run **OLAPREP2**.

   Information for all stores is shown for each quarter. You want to see quarterly information for only the first two stores in alphabetical order (low to high).
2. Click the square icon next to QUARTER to open the OLAP Control Panel (notice that the original report remains open at the left).
3. Choose **Store Name** in the Drill Down pane and click the **Sort**  button.

   The sort pane opens.

The following image shows these three selections on the OLAP Control Panel.



a. Accept the default sort order: **Low to High**.

b. Select the **Limit** check box and choose **2** for the limit.

c. Select the **Rank** check box.

4. Click **Ok** to return to the main OLAP Control Panel window.

5. Click **Run** at the bottom of the OLAP Control Panel.

   Notice that only two values now appear for each Quarter and they are ranked low to high within each group, as shown in the following image.

QUARTER	Store	Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	1	AV VideoTown	Analog	18,449	3,969,296.00
			Digital	22,206	5,109,400.00
	2	Audio Expert	Analog	78,449	16,467,146.00
			Digital	105,983	25,092,678.00
Q2	1	AV VideoTown	Analog	11,781	2,663,655.00
			Digital	27,377	5,928,507.00
	2	Audio Expert	Analog	57,944	11,868,758.00
			Digital	111,421	28,064,250.00
Q3	1	AV VideoTown	Analog	7,700	1,792,498.00
			Digital	17,379	3,625,972.00
	2	Audio Expert	Analog	19,508	4,216,289.00
			Digital	50,076	11,210,406.00
Q4	1	AV VideoTown	Analog	7,761	1,844,696.00
			Digital	21,915	4,553,762.00
	2	Audio Expert	Analog	25,897	5,916,936.00
			Digital	53,275	11,190,923.00

Reposition Sort Fields in an OLAP Report

You can change the order in which data is sorted and presented in the report. For example, you can change from sorting by State and then by Product to sorting by Product and then by State. If you want to reposition:

- Vertical (By) sort fields, drag a field into a new column position.
- Horizontal (Across) sort fields, drag the lower field above the higher one or the higher field above the lower one.

In each case, the cursor changes to a plus sign (+) to indicate acceptable places into which you can drop the field. Unacceptable positions are shown by a circle with a slash across the center.

Repositioning Sort Fields in an OLAP Report

1. Run **OLAPREP2**.

2. Click the top half of the diamond button next to **Quantity** to sort values from high to low.

   The dimension values adjust accordingly. The report now shows the Quantity values from high to low, but according to the QUARTER sort order, as shown in the following image.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q2	eMart	Digital	115,102	24,971,512.00
Q2	Audio Expert	Digital	111,421	28,064,250.00
Q1	eMart	Digital	108,221	24,990,368.00
Q1	Audio Expert	Digital	105,983	25,092,678.00

   You would like to change the sort order in the report, making Store Name the first sort field, followed by Product Type and QUARTER.

3. Drag **QUARTER** after Product Type.

   The cursor changes to a plus sign (+) to indicate acceptable places into which you can drop the field.

   The report changes immediately, as shown in the following image, with the Store Name being the first sort order.

Store Name:	Product Type:	QUARTER	Quantity:	Line Cost Of Goods Sold
eMart	Digital	Q2	115,102	24,971,512.00
Audio Expert	Digital	Q2	111,421	28,064,250.00
eMart	Digital	Q1	108,221	24,990,368.00
Audio Expert	Digital	Q1	105,983	25,092,678.00

Reposition Sort Fields from the OLAP Control Panel

Procedure

1. Open the OLAP Control Panel.

2. Select a field in the Drill Down or Drill Across pane.
3. Click the **Shift Up** or **Shift Down** arrow until the field is in the desired position.

   Repeat for other fields as needed.
4. Click **Run** to execute your report.

Repositioning Sort Fields from the OLAP Control Panel

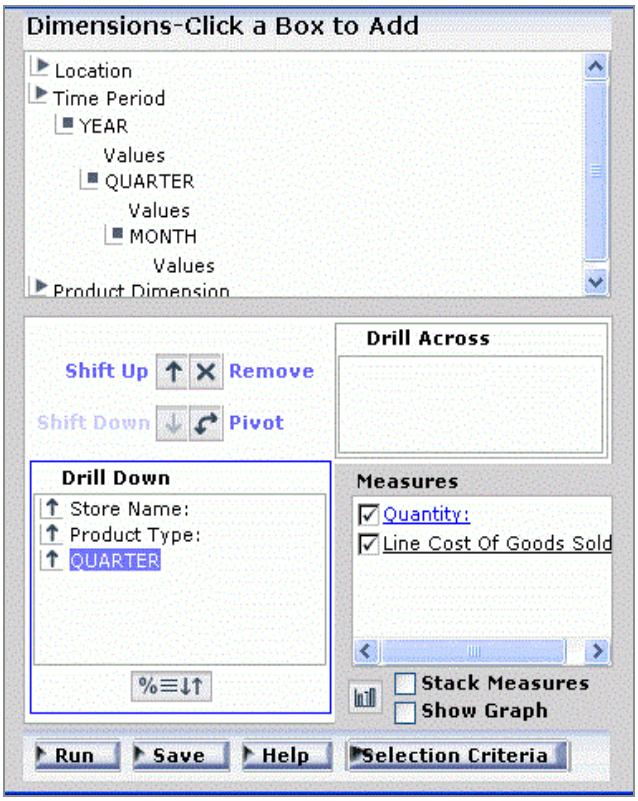
1. Run **OLAPREP2**.
2. Click the top half of the diamond button next to Quantity to sort values from high to low.

   The dimension values adjust accordingly. The report now shows the Quantity values from high to low, but according to the QUARTER sort order, as shown in the following image.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q2	eMart	Digital	115,102	24,971,512.00
Q2	Audio Expert	Digital	111,421	28,064,250.00
Q1	eMart	Digital	108,221	24,990,368.00
Q1	Audio Expert	Digital	105,983	25,092,678.00

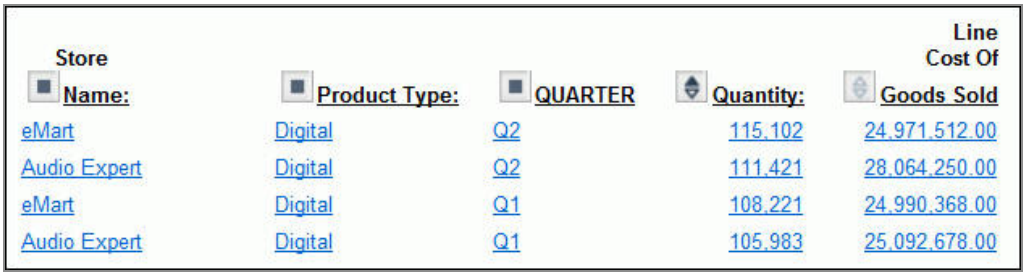
   You would like to change the sort order in the report, making Store Name the first sort field, followed by Product Type and QUARTER.
3. Click the square icon next to QUARTER to open the OLAP Control Panel.
4. Select **Quarter** from the Drill Down pane.
5. Click the **Shift Down** arrow twice.

   QUARTER is now the third item in the Drill Down list, as shown in the following image.



6. Click **Run** at the bottom of the OLAP Control Panel.

   QUARTER appears in the third column of the report, as shown in the following image.



Store Name:	Product Type:	QUARTER	Quantity:	Line Cost Of Goods Sold
eMart	Digital	Q2	115,102	24,971,512.00
Audio Expert	Digital	Q2	111,421	28,064,250.00
eMart	Digital	Q1	108,221	24,990,368.00
Audio Expert	Digital	Q1	105,983	25,092,678.00

Hide a Sort Field

In OLAP, you can hide a sort field by clicking the **Hide** check box in a report.

Note: Hidden sort fields are indicated by reversing the color of the icon that appears at the left of the field name.

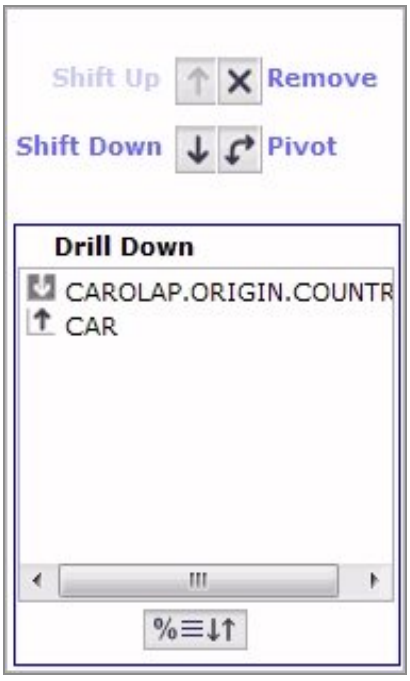
Procedure

1. Enter the following code in an ad hoc page.

```
-OLAP ON
TABLE FILE CAROLAP
SUM CAROLAP.BODY.DEALER_COST
CAROLAP.BODY.RETAIL_COST
BY CAROLAP.ORIGIN.COUNTRY
BY CAR
END
```

2. Open the OLAP Control Panel.
3. Double-click on the **Country** field in the Drill Down pane of the OLAP Control Panel. In the resulting window panel, select the **Hide** check box.
4. Click **Ok**.

   Notice that the color of the sort icon has been reversed. The Drill Down pane now appears, as shown in the following image.



Pivot Rows and Columns In an OLAP Report

You can quickly change a field from one that sorts data vertically, creating rows, to one that sorts the data horizontally, creating columns, or vice versa.

To change a:

- Vertical (By) sort field to a horizontal (Across) sort field, drag a field above the row of column titles.
- Horizontal (Across) sort field to a vertical (By) sort field, drag the field into the desired location in the row of column titles.

In each case, the cursor changes to a plus sign (+) to indicate acceptable places where you can drop the field. Unacceptable places have a circle with a slash across the center.

Pivoting Rows and Columns in a Report

1. Run **OLAPREP2**.
2. Click **Q1**.

   The report is now sorted vertically, by month, store, and Product Type, as shown in the following image.

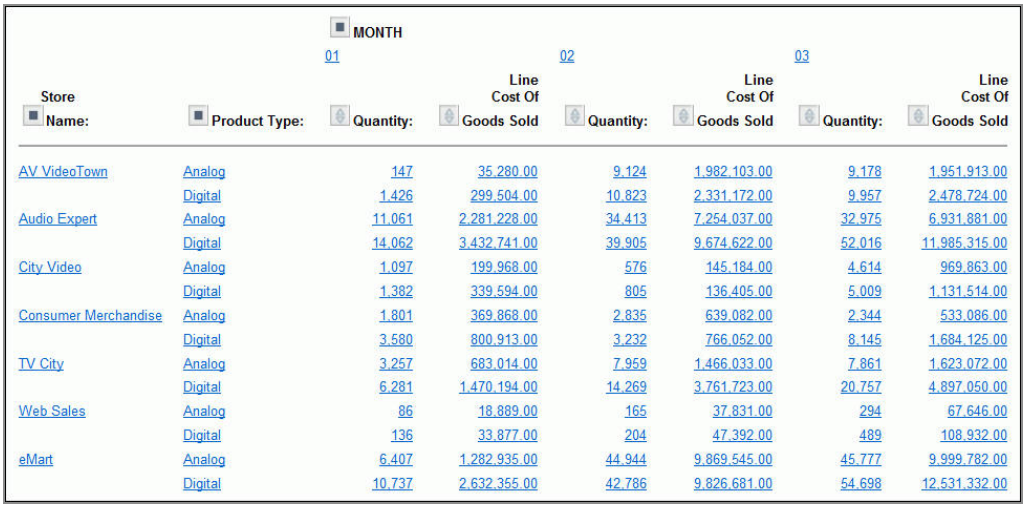
MONTH	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
01	AV VideoTown	Analog	147	35,280.00
		Digital	1,426	299,504.00
	Audio Expert	Analog	11,061	2,281,228.00
		Digital	14,062	3,432,741.00
	City Video	Analog	1,097	199,968.00
		Digital	1,382	339,594.00
	Consumer Merchandise	Analog	1,801	369,868.00
		Digital	3,580	800,913.00
	TV City	Analog	3,257	683,014.00
		Digital	6,281	1,470,194.00
	Web Sales	Analog	86	18,889.00
		Digital	136	33,877.00
	eMart	Analog	6,407	1,282,935.00
		Digital	10,737	2,632,355.00
02	AV VideoTown	Analog	9,124	1,982,103.00
		Digital	10,823	2,331,172.00
	Audio Expert	Analog	34,413	7,254,037.00

   You want to create a matrix in which the data is sorted horizontally by month, and vertically by store and Product Type.

3. Drag **MONTH** above the report to sort the data horizontally (Across).

   The cursor changes to a plus sign (+) to indicate acceptable places where you can drop the field.

   In the new report, Quantity and Line Cost of Goods Sold are repeated horizontally for each month, as shown in the following image.



		MONTH					
		01		02		03	
Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold	Quantity:	Line Cost Of Goods Sold	Quantity:	Line Cost Of Goods Sold
AV VideoTown	Analog	147	35,280.00	9,124	1,982,103.00	9,178	1,951,913.00
	Digital	1,426	299,504.00	10,823	2,331,172.00	9,957	2,478,724.00
Audio Expert	Analog	11,061	2,281,228.00	34,413	7,254,037.00	32,975	6,931,881.00
	Digital	14,062	3,432,741.00	39,905	9,674,622.00	52,016	11,985,315.00
City Video	Analog	1,097	199,968.00	576	145,184.00	4,614	969,863.00
	Digital	1,382	339,594.00	805	136,405.00	5,009	1,131,514.00
Consumer Merchandise	Analog	1,801	369,868.00	2,835	639,082.00	2,344	533,086.00
	Digital	3,580	800,913.00	3,232	766,052.00	8,145	1,684,125.00
TV City	Analog	3,257	683,014.00	7,959	1,466,033.00	7,861	1,623,072.00
	Digital	6,281	1,470,194.00	14,269	3,761,723.00	20,757	4,897,050.00
Web Sales	Analog	86	18,889.00	165	37,831.00	294	67,646.00
	Digital	136	33,877.00	204	47,392.00	489	108,932.00
eMart	Analog	6,407	1,282,935.00	44,944	9,869,545.00	45,777	9,999,782.00
	Digital	10,737	2,632,355.00	42,786	9,826,681.00	54,698	12,531,332.00

Pivot Rows and Columns from the OLAP Control Panel

You can change a field from one that sorts data vertically, creating rows, to one that sorts the data horizontally, creating columns, or vice versa.

Procedure

1. Open the OLAP Control Panel.
2. Select the title of the row or column you want to pivot in the Drill Down or Drill Across pane.
3. Click the **Pivot** button. The title appears in the new location.
4. Click **Run** to execute your report.

Pivoting Rows Into Columns from the OLAP Control Panel

1. Run **OLAPREP2**.
2. Click **Q1**.

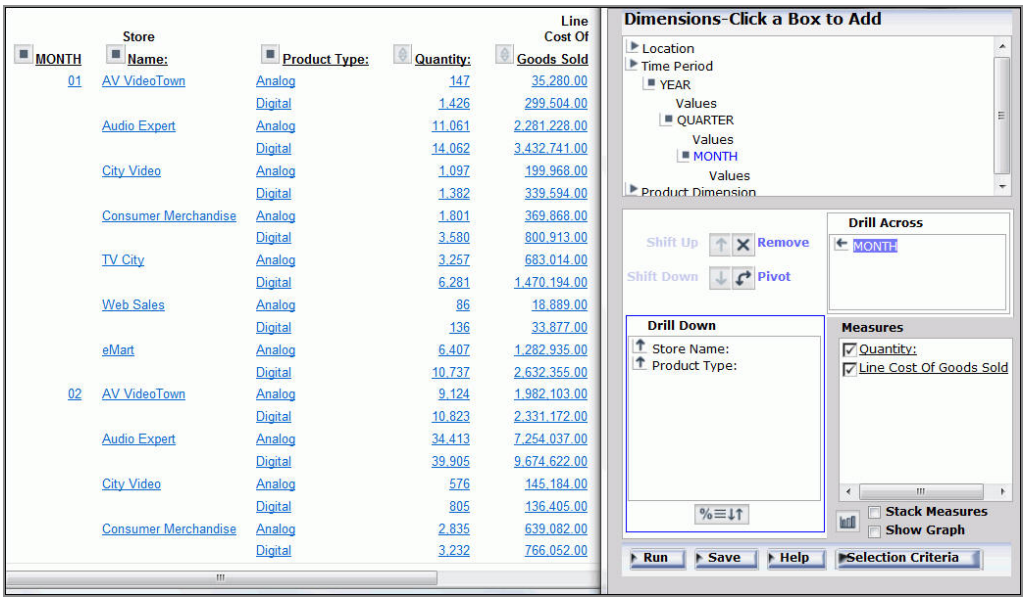
   The report is now sorted vertically, by month, store, and Product Type, as shown in the following image.

MONTH	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
01	AV VideoTown	Analog	147	35,280.00
		Digital	1,426	299,504.00
	Audio Expert	Analog	11,061	2,281,228.00
		Digital	14,062	3,432,741.00
	City Video	Analog	1,097	199,968.00
		Digital	1,382	339,594.00
	Consumer Merchandise	Analog	1,801	369,868.00
		Digital	3,580	800,913.00
	TV City	Analog	3,257	683,014.00
		Digital	6,281	1,470,194.00
	Web Sales	Analog	86	18,889.00
		Digital	136	33,877.00
	eMart	Analog	6,407	1,282,935.00
		Digital	10,737	2,632,355.00
02	AV VideoTown	Analog	9,124	1,982,103.00
		Digital	10,823	2,331,172.00
	Audio Expert	Analog	34,413	7,254,037.00

   You want to create a matrix in which the data is sorted horizontally by month, and vertically by store and Product Type.

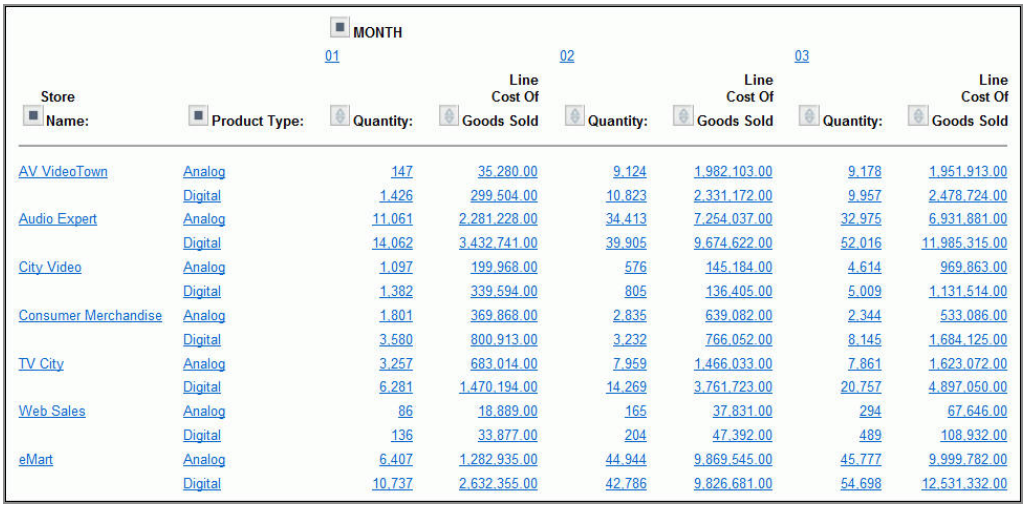
3. Click the square icon next to MONTH to open the OLAP Control Panel.
4. Select **MONTH** in the Drill Down pane and click the **Pivot** button.

   MONTH moves into the Drill Across pane, as shown in the following image.



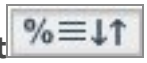
5. Click **Run** on the OLAP Control Panel.

   In the new report, Quantity and Line Cost of Goods Sold are repeated horizontally for each month, as shown in the following image.



Sort by a Field Without Displaying the Sort Column

Procedure

1. Open the OLAP Control Panel.
2. Select a field in the Drill Down or Drill Across pane.
3. Click the **Sort**  button.

   The sort pane opens.
4. Under Sort Order, select the **Hide** check box.
5. Click **Ok**.

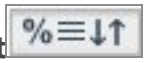
   The main OLAP Control Panel window reopens.
6. Click **Run** to execute the report.

Result

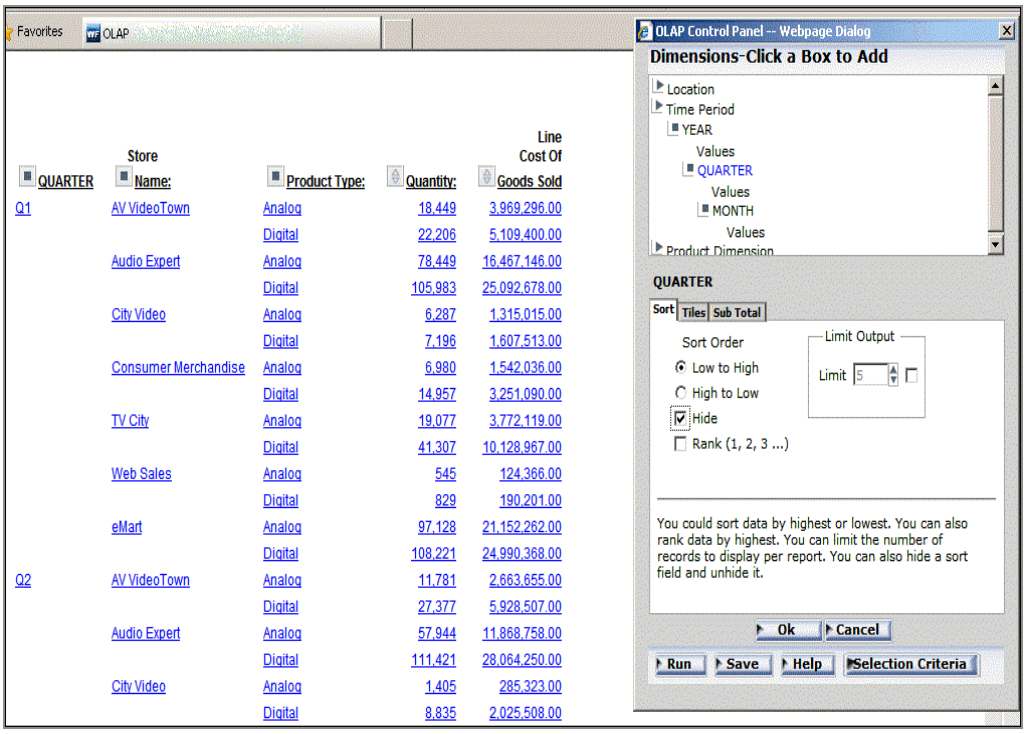
Tip: To expose the hidden sort field, repeat the process and deselect the **Hide** check box.

Sorting by a Hidden Field

1. Run **OLAPREP2**.

   The first sort field in the report is QUARTER. You want to retain the sorting but not display this field.
2. Click the square icon next to QUARTER to open the OLAP Control Panel.
3. Select **QUARTER** in the Drill Down pane, then click the **Sort**  button.

   The sort pane opens.
4. Select the **Hide** check box, as shown in the following image.



5. Click **Ok**.

   The main OLAP Control Panel window reopens.

6. Click **Run** in the OLAP Control Panel.

   Report sorting is unchanged, but the QUARTER column no longer appears, as shown in the following image.

Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
AV VideoTown	Analog	18,449	3,969,296.00
	Digital	22,206	5,109,400.00
Audio Expert	Analog	78,449	16,467,146.00
	Digital	105,983	25,092,678.00
City Video	Analog	6,287	1,315,015.00
	Digital	7,196	1,607,513.00
Consumer Merchandise	Analog	6,980	1,542,036.00
	Digital	14,957	3,251,090.00
TV City	Analog	19,077	3,772,119.00
	Digital	41,307	10,128,967.00
Web Sales	Analog	545	124,366.00
	Digital	829	190,201.00
eMart	Analog	97,128	21,152,262.00
	Digital	108,221	24,990,368.00
AV VideoTown	Analog	11,781	2,663,655.00
	Digital	27,377	5,928,507.00

Grouping Numeric Data Into Tiles

You can group numeric data into any number of tiles (percentiles, deciles, quartiles, and so on) in tabular reports. For example, you can group student test scores into deciles to determine which students are in the top ten percent of the class.

Grouping is based on the values in the selected vertical (BY) field and data is apportioned into the number of tile groups you specify.

The following occurs when you group data into tiles:

- A new column (labeled TILE by default) is added to the report output and displays the tile number assigned to each instance of the tile field. You can change the column title in the Tiles section of the OLAP Control Panel.
- Tiling is calculated within all of the higher-level sort fields in the request and restarts whenever a sort field at a higher level than the tile field value changes.
- Instances are counted using the tile field. If the request displays fields from lower-

level segments, there may be multiple report lines that correspond to one instance of the tile field.

- Instances with the same tile field value are placed in the same tile. For example, consider the following data, which is to be apportioned into three tiles:

  1

  5

  5

  5

  8

  9

  In this case, dividing the instances into groups containing an equal number of records produces the following table:

Group	Data Values
1	1,5
2	5,5
3	8,9

  However, because all of the same data values must be in the same tile, the fives (5) that are in group 2 are moved to group 1. Group 2 remains empty.

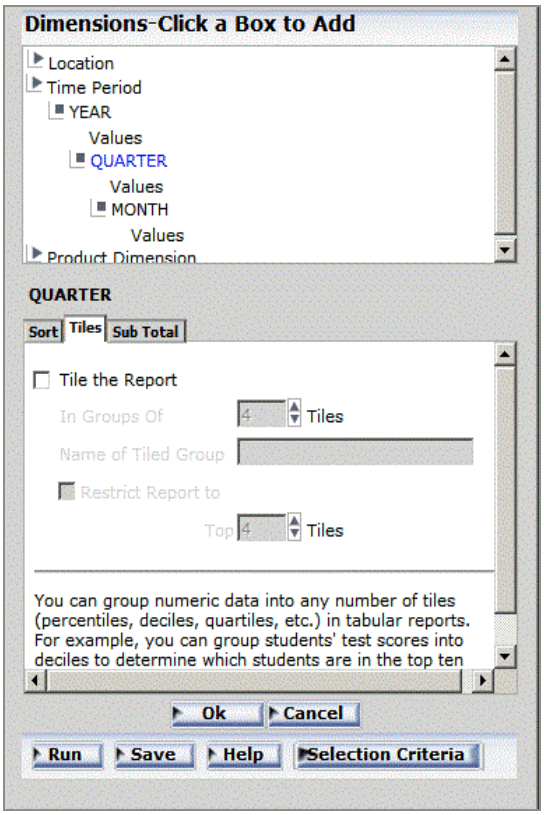
  The final tiles look like the following table:

Tile Number	Data Values
1	1,5,5,5
2	
3	8,9

Group Data Into Tiles in an OLAP Report

Procedure

1. Open the OLAP Control Panel.
2. Select a numeric or date field from the Drill Down pane.
3. Click the **Sort** button.
4. Click the **Tiles** tab, as shown in the following image.



5. Click the **Tile the Report** check box.
6. In the **In Groups Of** input area, select the number of tiles to be used in grouping the data. For example, 100 tiles produces percentiles or 10 tiles produces deciles.
7. In the **Name of Tile Group** input pane, type a name for the Tile column.
8. In the **Restrict Report to only the Top** input area, select the number of tile groups to display in the report.
9. Optionally, select the **Sort** tab and select a Sort Order option button:

- Choose **High to Low** to sort data in descending order so that the highest data values are placed in tile 1.
- Choose **Low to High** to sort data in ascending order so that the lowest data values are placed in tile 1. This is the default.

10. If you wish to specify the highest tile value to appear in the report, select a value from the Limit input area. For example, if you enter a limit of 3, the report will not display any data row that is assigned a tile number greater than 3.
11. Click **Ok** to accept the selections and return to the main OLAP Control Panel window.
12. Click **Run** to execute and view the report.

Performing a Calculation on a Measure

You can perform standard calculations, such as average, percent, and summarize, on the numeric data in measures on an OLAP report.

Apply a Calculation to a Measure

Procedure

1. Open the OLAP Control Panel.
2. Click a measure name in the Measures pane.

   Note: Do not click the **Stack Measures** check box, which controls the display of a measure, not its sorting.

   The sort options pane opens.
3. Click the arrow under Measure Calculations and select a calculation from the list.

   None is the default value. For details, see Performing a Calculation on a Measure.
4. Click **Ok**.

   The sort pane is replaced by the Measures pane, where the selected calculation appears as a prefix to the measure.
5. Click **Run**, and the applied calculation is added to the column title.

Calculations You Can Perform on a Measure

The following table lists the types of calculations in the first column and describes their functions in the second column.

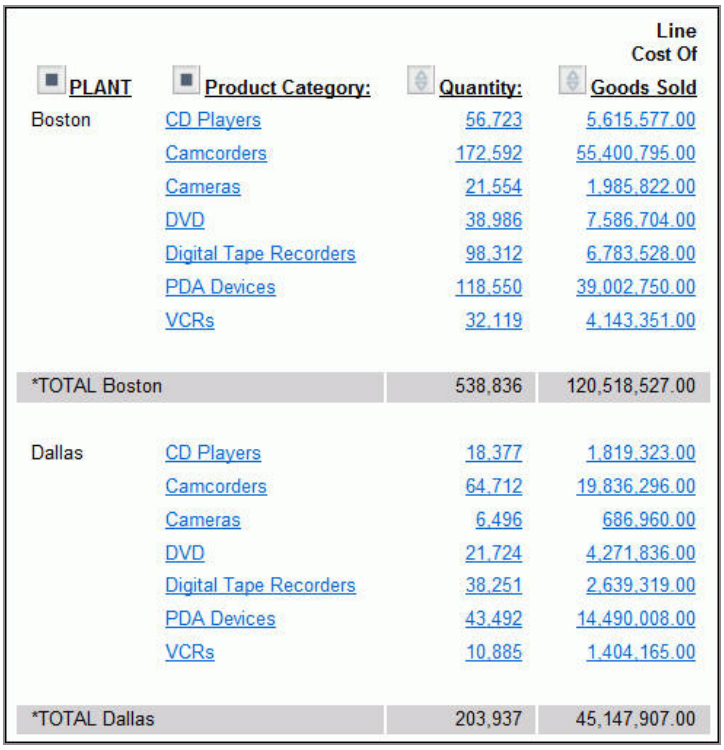
Calculation	Function
`Average Sum of Squares`	Computes the average sum of squares for standard deviation in statistical analysis.
`Average`	Computes the average value of the field.
`Count`	Counts the number of occurrences of the field.
`Count Distinct`	Counts the number of distinct values within a field when using -REMOTE. For other modes of operation, this behaves like Count.
`Maximum`	Generates the maximum value of the field.
`Minimum`	Generates the minimum value of the field.
`Percent`	Computes the percent of a field based on the total values for the field. The Percent can be used with detail, as well as summary fields.
`Percent of a Count`	Computes the percent of a field based on the number of instances found.
`Row Percent`	Computes the percent of a field based on the total values for the field across a row.

Calculation	Function
`Summarize`	Sums the number of occurrences of the field.
`Total`	Counts the occurrences of the field for use in a heading (includes footings, subheads, and subfoots).

Applying a Percent Calculation to a Measure

The following is an example of applying a percent calculation to a measure.

1. Run **OLAPREP6**.



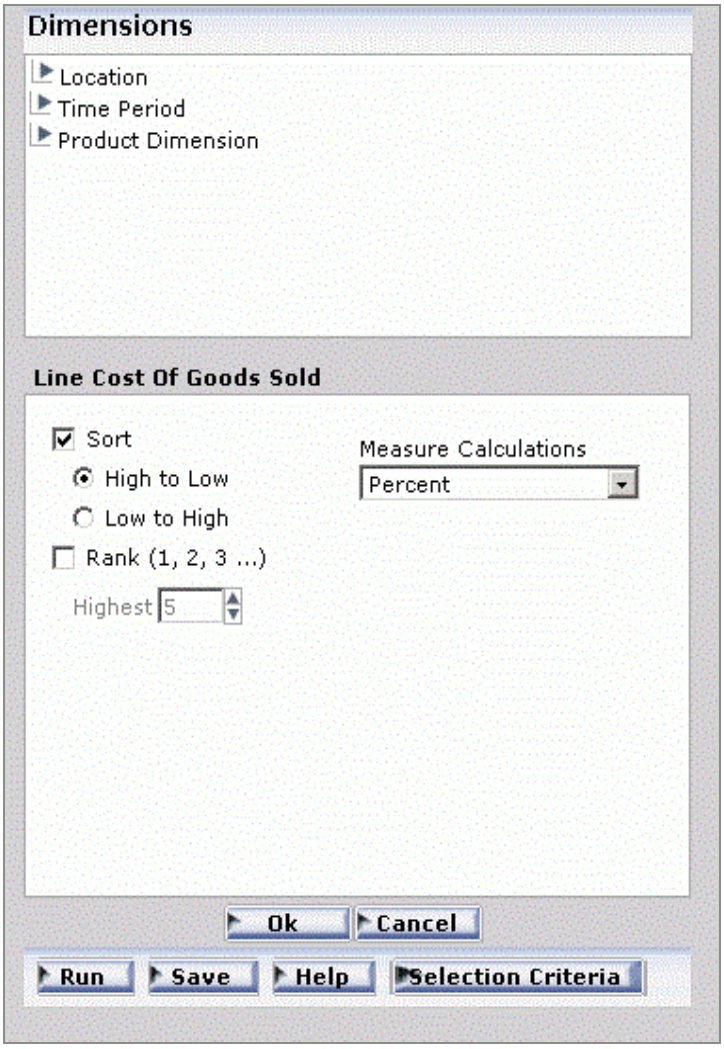
PLANT	Product Category:	Quantity:	Line Cost Of Goods Sold
Boston	CD Players	56,723	5,615,577.00
	Camcorders	172,592	55,400,795.00
	Cameras	21,554	1,985,822.00
	DVD	38,986	7,586,704.00
	Digital Tape Recorders	98,312	6,783,528.00
	PDA Devices	118,550	39,002,750.00
	VCRs	32,119	4,143,351.00
*TOTAL Boston		538,836	120,518,527.00
Dallas	CD Players	18,377	1,819,323.00
	Camcorders	64,712	19,836,296.00
	Cameras	6,496	686,960.00
	DVD	21,724	4,271,836.00
	Digital Tape Recorders	38,251	2,639,319.00
	PDA Devices	43,492	14,490,008.00
	VCRs	10,885	1,404,165.00
*TOTAL Dallas		203,937	45,147,907.00

The report shows Quantity and Line Cost of Goods Sold sorted by plant and product category, with a subtotal at each sort break.

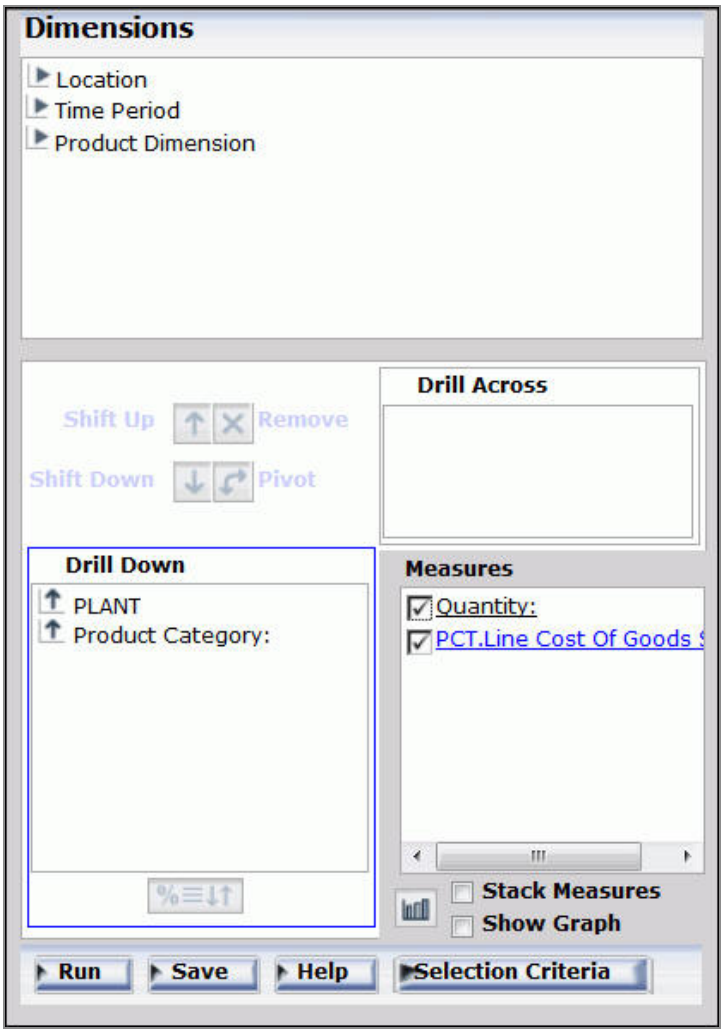
You want to create a report column that shows the percent of total sales for each plant.

2. Click the square icon next to PLANT to open the OLAP Control Panel.
3. Click **Line Cost of Goods Sold** in the Measures pane.

   The sort pane opens.
4. Select the **Sort** check box, and select the **High to Low** option button to specify the sort order.
5. Under Measure Calculations, choose **Percent** from the drop-down list, as shown in the following image.



6. Click **Ok** to see the calculation as a prefix for the measure in the Measures pane as shown in the following image.



7. Click **Run** at the bottom of the OLAP Control Panel.

   The report now breaks down sales for each product at each plant as a percentage of total sales, as shown in the following image.

PLANT	Product Category:	Quantity:	Percent Line Cost Of Goods Sold
Boston	Camcorders	172,592	16.42
*TOTAL Boston		172,592	16.42
St Louis	Camcorders	135,629	12.55
*TOTAL St Louis		135,629	12.55
Boston	PDA Devices	118,550	11.56
*TOTAL Boston		118,550	11.56
St Louis	PDA Devices	84,158	8.24
*TOTAL St Louis		84,158	8.24
Orlando	Camcorders	69,611	6.49
*TOTAL Orlando		69,611	6.49
Dallas	Camcorders	64,712	5.88

Notice that the subtotals have been removed from the report because the breakdown by plant is no longer suitable for the data.

Limiting Data

An OLAP report is limited to values belonging to the parent categories in the dimensions hierarchy. There are several ways to further limit the data that appears in the report.

- From the Selections panel or the OLAP Control Panel, you can explicitly limit the data in an OLAP report by selecting dimension values and relational operators (such as =, >, <). For a list of the relational operators, see Limiting Data.

  The Selections panel provides the easiest approach since you can choose both dimension values and relational operators with a few mouse clicks, while the report

is fully exposed to view.

Changes made in the Selections panel are implemented immediately in the OLAP Control Panel (even if the Control Panel is closed), and changes made in the OLAP Control Panel are reflected immediately in the Selections panel.

- From the report, you can limit data indirectly by drilling down on measures and dimensions to hone in on a subset of information. For details, see Drilling Down On Dimensions and Measures.

Selection Criteria Relational Operators

You can define selection criteria in the Selections panel or in the OLAP Control Panel using several relational operators, which are shown in the following tables. The first column displays the operator and the second column provides a description of the operator.

Operator	Icon	Displays Records That...
Is Equal To		Are equal to the criteria you specified. This is the default operator.
Is Not Equal To		Are not equal to the criteria you specified.
Is Greater Than		Are greater than, but not equal to, the criteria you specified.
Is Greater Than or Equal To		Are greater than or equal to the criteria you specified.
Is Less Than		Are less than, but not equal to, the criteria you specified.
Is Less Than or Equal To		Are less than or equal to the criteria you specified.
Contains		Contain the criteria you specified.

Operator	Icon	Displays Records That...
		Note: This operator is available only for alphanumeric fields.
Does Not Contain		Do not contain the criteria you specified. **Note:** This operator is available only for alphanumeric fields.

Note: You can select more than one value using the same relational operator.

The following table lists and describes relational operators for selecting a range of dates.

Operator	Icon	Displays Records Where...
From (within range)		The value in the indicated date field falls within the specified range. **Note:** To use this relational operator, you must select the Range check box in the Date Selection panel.
Not From (not within range)		The value in the indicated date field does **not** fall within the specified range. **Note:** To use this relational operator, you must select the Range check box in the Date Selection panel.

Apply Selection Criteria From the Selections Panel

When the Selections panel is turned on, there is one control (drop-down list) for every dimension in the OLAP hierarchy. Note that the name of the dimension field appears as defined in the Master File, even if an alternate column title has been specified.

To limit data for the dimensions that are included in the report:

Procedure

1. Click the arrow to the right of the dimension to open the list of values.
2. Select one or more values from the list. (**All** is the default value.)

   To select multiple values, click the desired values while holding the Ctrl key on the keyboard.
3. Select a relational operator from the button to the left of the dimension to indicate the basis for selection. Equal (=) is the default.

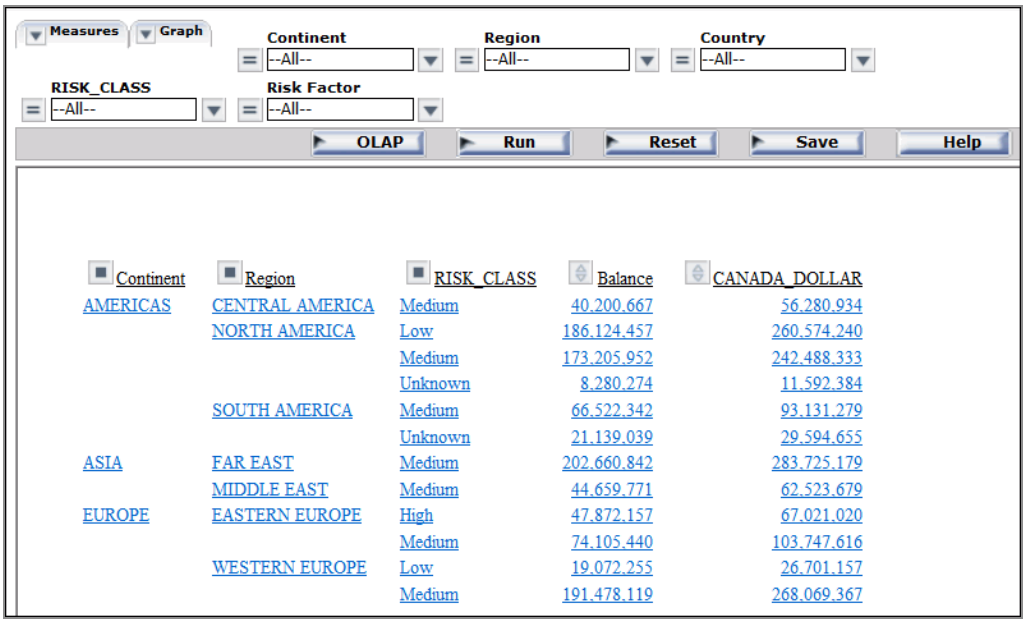
   You can toggle through a list of operators. See Limiting Data.
4. Repeat steps 1-3 for each dimension whose values you wish to limit.
5. Click **Run** on the band below the Selections panel.

Result

Tip: To change or eliminate selection criteria, reopen the values list and choose another value or choose **All**.

Limiting Continents and Regions From the Selections Panel

1. Run **OLAPREP7**.



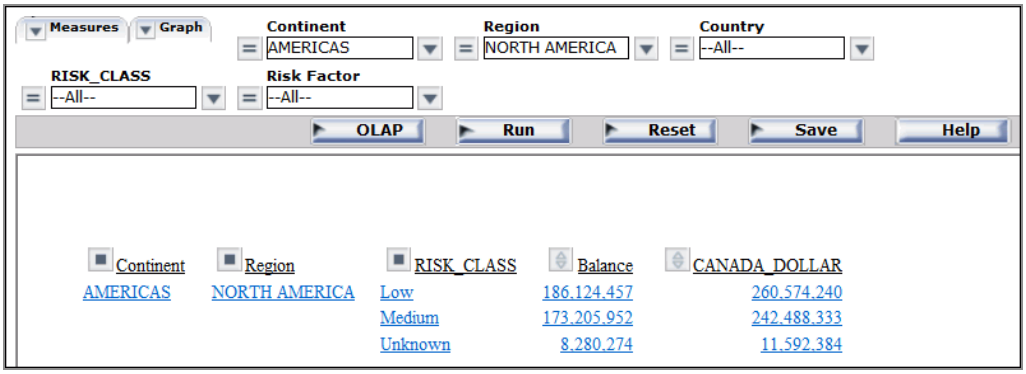
Continent	Region	RISK_CLASS	Balance	CANADA_DOLLAR
AMERICAS	CENTRAL AMERICA	Medium	40,200,667	56,280,934
	NORTH AMERICA	Low	186,124,457	260,574,240
		Medium	173,205,952	242,488,333
		Unknown	8,280,274	11,592,384
	SOUTH AMERICA	Medium	66,522,342	93,131,279
		Unknown	21,139,039	29,594,655
ASIA	FAR EAST	Medium	202,660,842	283,725,179
	MIDDLE EAST	Medium	44,659,771	62,523,679
EUROPE	EASTERN EUROPE	High	47,872,157	67,021,020
		Medium	74,105,440	103,747,616
	WESTERN EUROPE	Low	19,072,255	26,701,157
		Medium	191,478,119	268,069,367

The Selections panel above the report shows that the controls for Continent and Region are set to **All** to show all values of each dimension.

You wish to focus on the data for one continent and one region.

2. In the Selections panel, click the arrow to the right of Continent and select **AMERICAS** from the list of values. Use the default operator (=) to limit the data.
3. Next, click the arrow to the right of Region and select **NORTH AMERICA**. Once again, accept the default operator (=).
4. Click **Run** on the band below the Selections panel.

   The output is now limited to data for the selected continent and region, as shown in the following image.



Continent	Region	RISK_CLASS	Balance	CANADA_DOLLAR
AMERICAS	NORTH AMERICA	Low	186,124,457	260,574,240
		Medium	173,205,952	242,488,333
		Unknown	8,280,274	11,592,384

Apply Selection Criteria from the OLAP Control Panel

Procedure

1. Open the OLAP Control Panel.
2. Click the **Selection Criteria** button at the bottom right of the window.

   The Selection Criteria pane opens.
3. In the Dimensions pane above the Selection Criteria pane, expand a dimension and click **Values**.

   A secondary window opens. Select one or more values (press the Ctrl key to multiselect).
4. Click **Ok** to return to the Selection Criteria pane, where the selected values appear in the drop-down lists.
   - If a Developer has applied selection criteria to the Reporting Object from which you create an OLAP report, you only see the selected acceptable values of the field.
   - If no selection criteria have been applied, you see all the values of the field in the drop-down lists.
5. In the **Selection Criteria** pane, click a relational operator next to the dimension to specify the relationship that you want to base selection on. For example, =, >, or <. For a complete list, see Limiting Data.
6. Repeat the process for other dimensions whose values you wish to limit.
7. Click **Run** to execute your report.

Limiting Continents and Countries from the OLAP Control Panel

Tip: If you have access to the Selections panel, it provides the quickest way to limit data. See an illustration in Limiting Data.

1. Run **OLAPREP8**.

   The report shows data for continents and countries. You want to restrict the information to the Countries ARGENTINA and BRAZIL in the Continent AMERICAS.

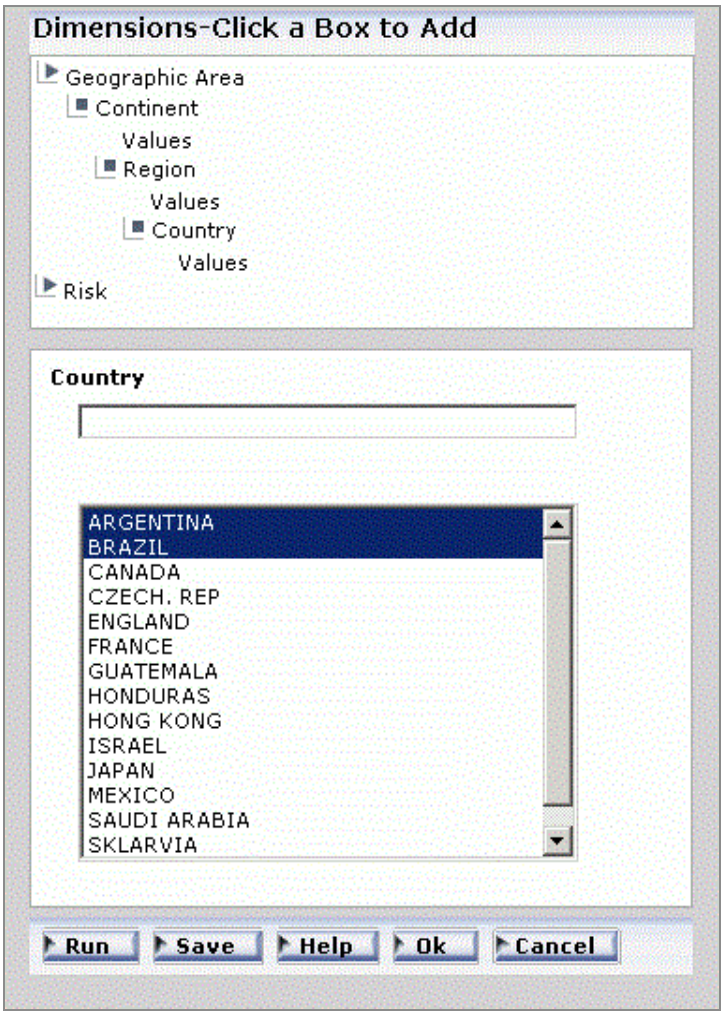
2. Click the square icon next to **Continent** to open the OLAP Control Panel.

3. Click the **Selection Criteria** button at the bottom right to open the Selection Criteria pane.

4. In the Dimensions pane above the Selection Criteria pane, expand the **Geographic Area** dimension and click **Values** under Country.

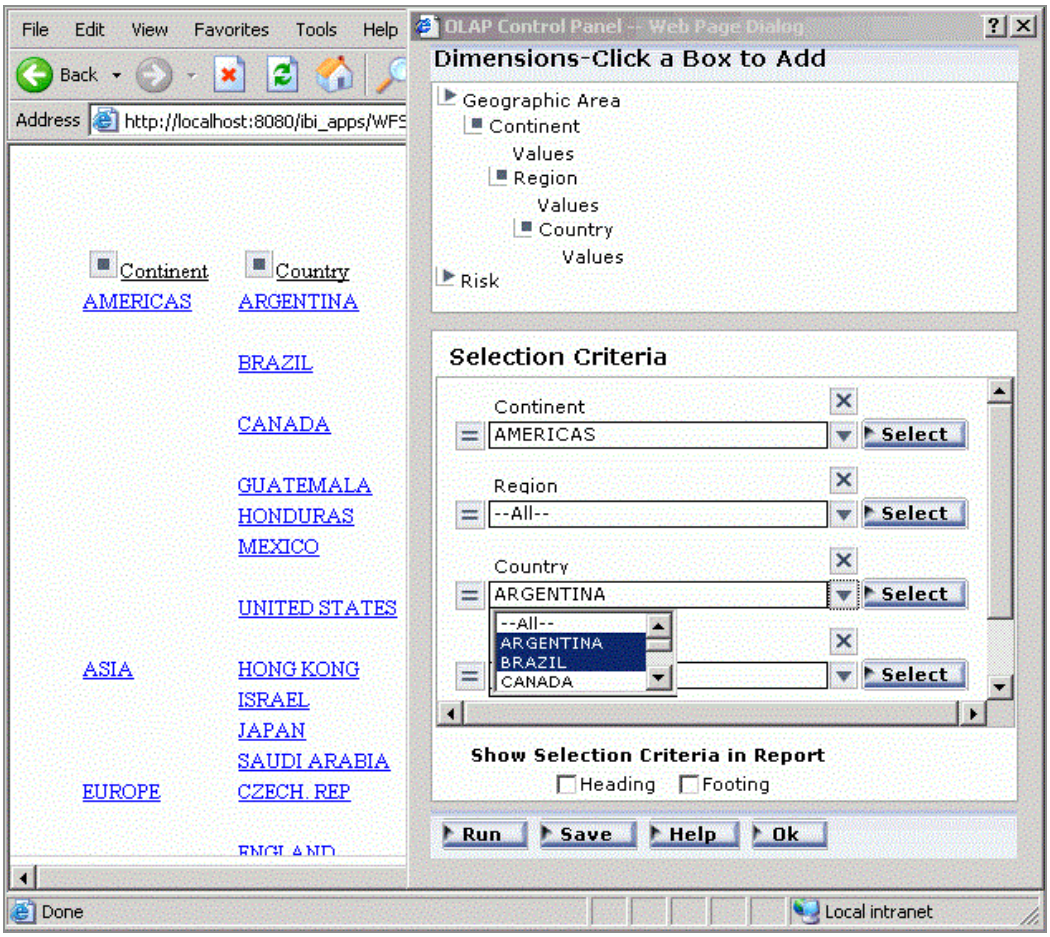
   A secondary window lists the acceptable values.

5. In this window, choose **ARGENTINA** and **BRAZIL**, as shown in the following image. (Hold down the Ctrl key to multiselect values.)



6. Click **Ok** to return to the Selection Criteria pane.
7. In the Dimensions pane, click **Values** under Continent and choose **AMERICAS**, then click **Ok**.

   The selected values now appear in the drop-down lists in the Selection Criteria pane, as shown in the following image.



8. Verify that you want to use the default operator (=), then click **Run** at the bottom of the OLAP Control Panel.

   The new report displays the data by Continent, AMERICAS followed by Country, as shown in the following image.

Continent	Country	RISK_CLASS	Balance	CANADA_DOLLAR
AMERICAS	ARGENTINA	Medium	36,921,658	51,690,321
		Unknown	5,246,222	7,344,711
	BRAZIL	Medium	29,600,684	41,440,958
		Unknown	15,892,817	22,249,944

Change Selection Criteria from the OLAP Control Panel

Tip: If you have access to the Selections panel, it provides the easiest way to adjust or remove selection criteria. See Limiting Data.

From the OLAP Control Panel:

Procedure

1. Click the **Selection Criteria** button at the bottom right.

   The Selection Criteria pane opens.

2. Click the **Select** button next to the dimension value you wish to modify.

   A secondary pane opens.

   a. **To change a value:** Type the new value in the text pane or select one or more values from the list. (The value you type must be in the same case as the value in the data source.)

      You can input only one value in the text pane. If you select more than one value from the list, only the first value appears. However, all values appear in your report.

   b. **To deselect a value:** Hold down the Ctrl key while clicking the value.

3. Click **Ok** to return to the Selection Criteria pane where you can verify the revised value and/or change the relational operator if required.

4. Click **Ok** again to confirm your choice and return to the main OLAP Control Panel window.

5. Click **Run** to execute your report.

Remove Selection Criteria from the OLAP Control Panel

To change a value: Type the new value in the text pane or select one or more values from the list. (The value you type must be in the same case as the value in the data source.)

You can input only one value in the text pane. If you select more than one value from the list, only the first value appears. However, all values appear in your report.

Tip: If you have access to the Selections panel, it provides the easiest way to adjust or remove selection criteria. See Limiting Data.

From the OLAP Control Panel:

Procedure

1. Click the **Selection Criteria** button at the bottom right.

   The Selection Criteria pane opens.
2. Select the criterion you want to remove.
3. Click the **Delete** button.

   The selection category is removed from the list.
4. Click **Run** to execute your report with all values.

Applying Selection Criteria to Date Elements

You can apply selection criteria to date elements just as you apply them to other types of elements. The results are limited by the dates you select. For example, you can select to view data associated with a particular date or to exclude data from the specified date.

Note: Like other dimension elements, date fields must have been defined in the Master File. The Master File specifies the date formats available for selection criteria.

In the OLAP Control Panel, you can choose the selection criteria from a Date selection pane that contains the appropriate controls for the date format.

You can also select a range of dates in a designated year by specifying a **From** and **To** date. Two relational operators are available for selecting a range of dates:

- The **From (within range)** operator displays records when the value in the indicated date field falls within the specified range.
- The **Not From (not within range)** operator displays records when the value in the indicated date field does **not** fall within the specified range.

For more information on supported date formats, see Limiting Data. For more information on specifying date formats, see the *Describing Data With ibi™ WebFOCUS® Language* manual.

Apply Selection Criteria to a Date Field

Before you begin

Note: The Date selection pane appears only when a supported date format is provided. See Limiting Data.

From the OLAP Control Panel:

Procedure

1. Click the **Selection Criteria** button.

   The Selection Criteria pane opens.

2. In the Dimensions pane above the Selection Criteria pane, expand a dimension that includes a date field, and click **Values** directly below that field.

   A secondary window displays controls for the date format of the dimension. For example, if the date format is YYM, only the year and month controls appear. If the format is YYMD, year, month, and day controls appear.

3. Specify a date using the spin controls, drop-down lists, or by typing the value.

   If your date format includes edit masking, such as Y.M.D, the date appears with forward slashes (/) in the Date selection list pane, the Selection Criteria pane, and the drop-down list at the bottom of the report. However, the date edit mask appears as specified within the body of the report.

4. Click **Add** to display the date in the Selections list pane.

5. Click **Ok** to return to the Selection Criteria pane and verify the selected date.

6. In the Selection Criteria pane, click a relations button to the left of the date field (for example, =, >, or <) to indicate a basis for record selection.

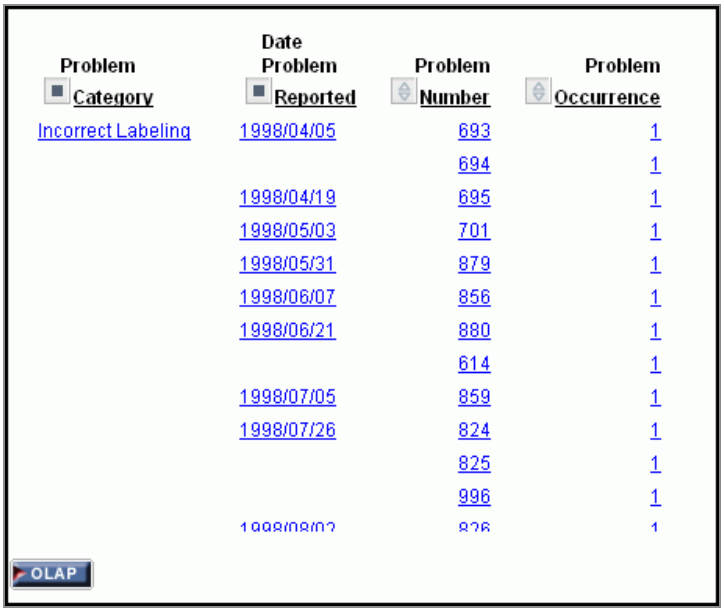
7. Optionally, define additional date selection criteria by repeating steps 2-7.

8. Click **Run** to execute your report.

Applying Selection Criteria to a Date Field

1. Run **OLAPREP9**.

   As shown in the following images, the multi-page OLAP report includes several years of data about reported problems falling into five categories: incorrect labeling, missing components, physical damage, power failure, and remote failure.



Problem Category	Date Problem Reported	Problem Number	Problem Occurrence
Incorrect Labeling	1998/04/05	693	1
		694	1
	1998/04/19	695	1
	1998/05/03	701	1
	1998/05/31	879	1
	1998/06/07	856	1
	1998/06/21	880	1
		614	1
	1998/07/05	859	1
	1998/07/26	824	1
		825	1
		996	1
	1998/08/02	826	1

   You want to investigate problems reported on June 6, 2001. You can limit data based on a single date from the OLAP Control Panel.

Problem Category	Date Problem Reported	Problem Number	Problem Occurrence
Mechanical Failure	2000/09/15	2885	1
		3909	1
		2742	1
		3766	1
	2000/09/25	3304	1
	2000/09/29	2616	1
		3640	1
		2747	1
		2889	1
		3771	1
		3913	1
		2615	1
		3639	1

OLAP

Note: To show the selection of a particular date, a dimension component has been added to the procedure. This dimension places Date Problem Reported in the Time Period dimension hierarchy directly below the root.

2. Click the **OLAP** button below the report to open the OLAP Control Panel.

   Note: The OLAP button appears at the bottom of this report because the OLAP CONTROL setting was selected.

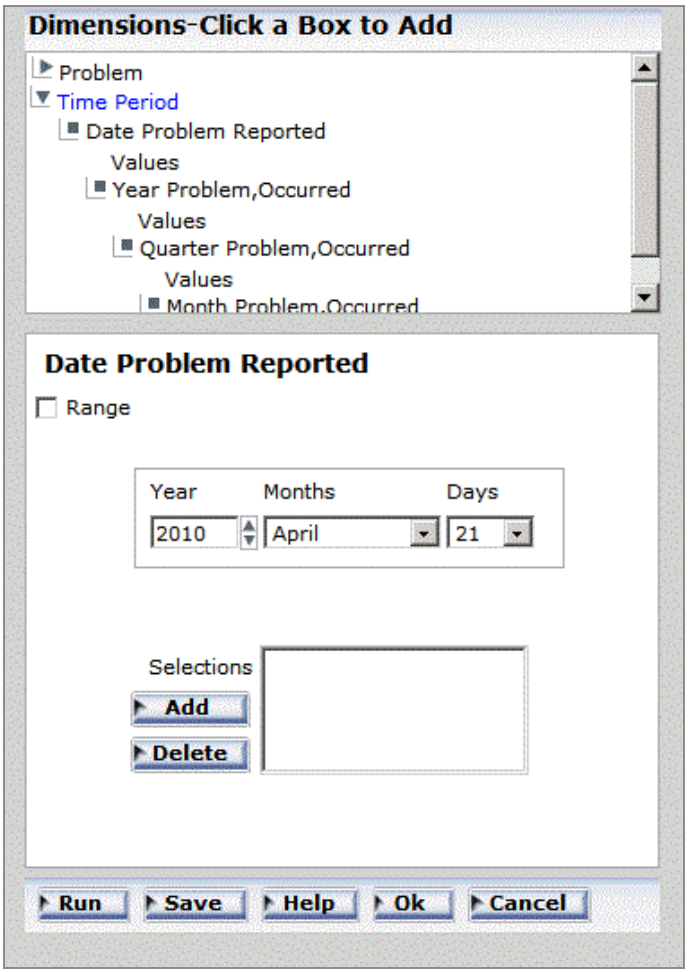
3. Click the **Selection Criteria** button at the bottom of the OLAP Control Panel.

   The Selection Criteria pane opens.

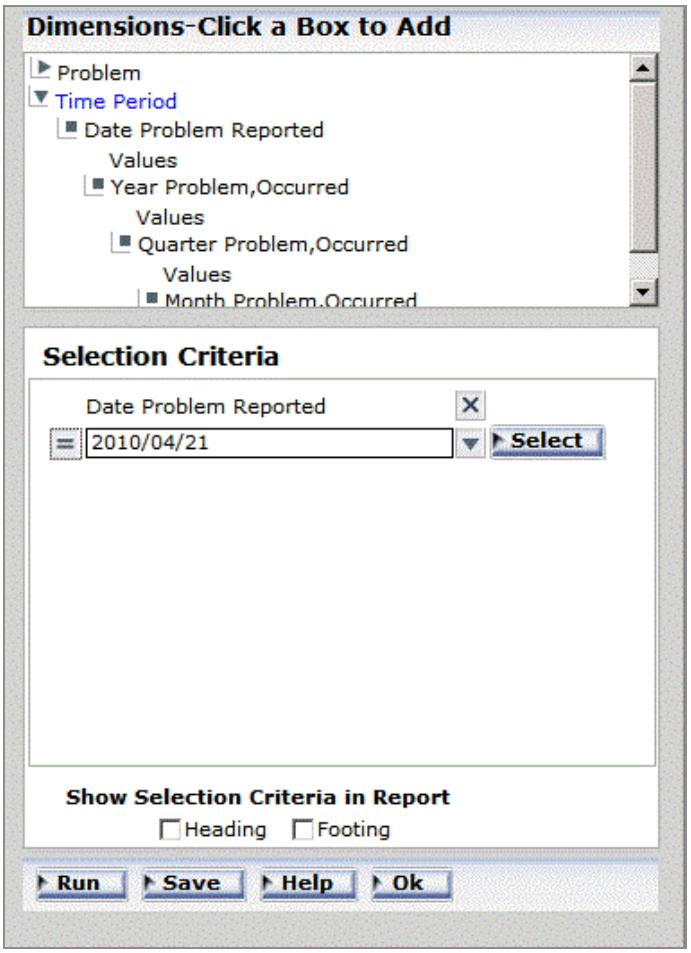
4. In the Dimensions pane above the Selection Criteria pane, expand the **Time Period** hierarchy.

5. Click **Values** under Date Problem Reported.

   A new pane appears for Date Problem Reported, replacing the Selection Criteria pane. The pane includes a drop-down list for each selectable value (Year, Month, and Date), as shown in the following image.



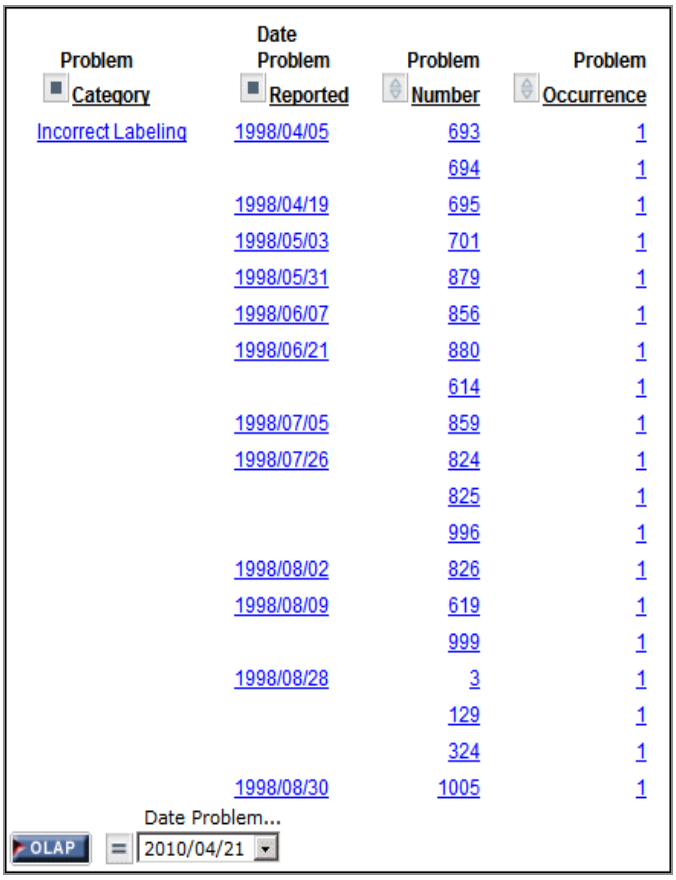
6. Select values. For example:
    a. Change the year to 2010 in the Year field by using the spin controls or typing the value.
    b. Select April from the Months drop-down list.
    c. Select 21 from the Days drop-down list.
    d. Click **Add** to enter these criteria in the input pane.
7. Click **Ok** to return to the Selection Criteria pane, which now reflects your entries, as shown in the following image.



The relational operator to the left of the Date pane indicates that your report will contain data only for those rows where date is equal to (=) the values you entered. This default operator is correct for this example.

8. Click **Run** to see the problem report for the specified date.

   Your selection criteria are listed beside the **OLAP** button at the bottom of the report, as shown in the following image.



Problem Category	Date Problem Reported	Problem Number	Problem Occurrence
Incorrect Labeling	1998/04/05	693	1
		694	1
	1998/04/19	695	1
	1998/05/03	701	1
	1998/05/31	879	1
	1998/06/07	856	1
	1998/06/21	880	1
		614	1
	1998/07/05	859	1
	1998/07/26	824	1
		825	1
		996	1
	1998/08/02	826	1
	1998/08/09	619	1
		999	1
	1998/08/28	3	1
		129	1
		324	1
	1998/08/30	1005	1

Apply Selection Criteria to a Date Range

Procedure

1. Open the OLAP Control Panel.
2. Click the **Selection Criteria** button.

   The Selection Criteria pane opens.
3. In the Dimensions pane above the Selection Criteria pane, expand the dimension that includes the date field, and click **Values** directly under the desired field.

   A secondary window displays controls for the date format of a dimension. For example, if the date format is YYM, only the year and month controls appear. If the format is YYMD, year, month, and day controls appear.

   Note: The Date selection pane appears only when a supported date format is

provided. See Limiting Data.

4. Click the **Range** check box.

   Inclusive and Exclusive option buttons appear:

   - Choose **Inclusive** to show the range including the dates specified.
   - Choose **Exclusive** to show the range excluding the dates specified.

   Note:

   - You can select only one range of dates at a time.
   - You can apply selection criteria to a range of dates only if the date format contains a year. See Limiting Data.

   From and To drop-down lists open for all selectable options. By default, the current date appears.

5. Specify a **From** date and a **To** date by using the spin controls and drop-down lists.
6. Click **Ok** to return to the Selection Criteria pane.
7. To view both the From and To dates of the range selected, click the down arrow on the drop-down list.
8. Click a relational operator to the left of the date element in the Selection Criteria pane:

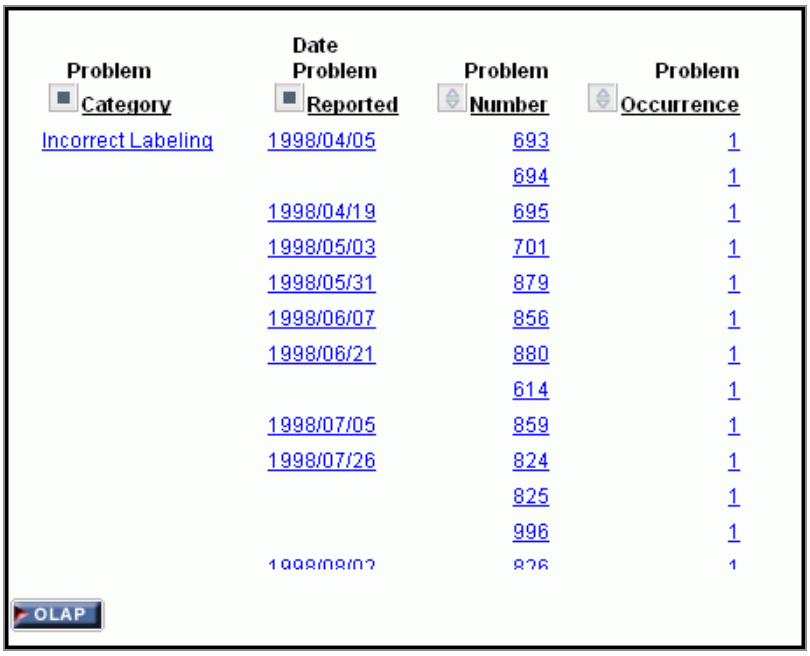
   - Choose the **From (within range)** operator to display records when the value falls within the specified range.
   - Choose the **Not From (not within range)** operator to display records when the value does *not* fall within the specified range.

9. Click **Run** to execute your report.

Applying Selection Criteria to a Range of Date Fields

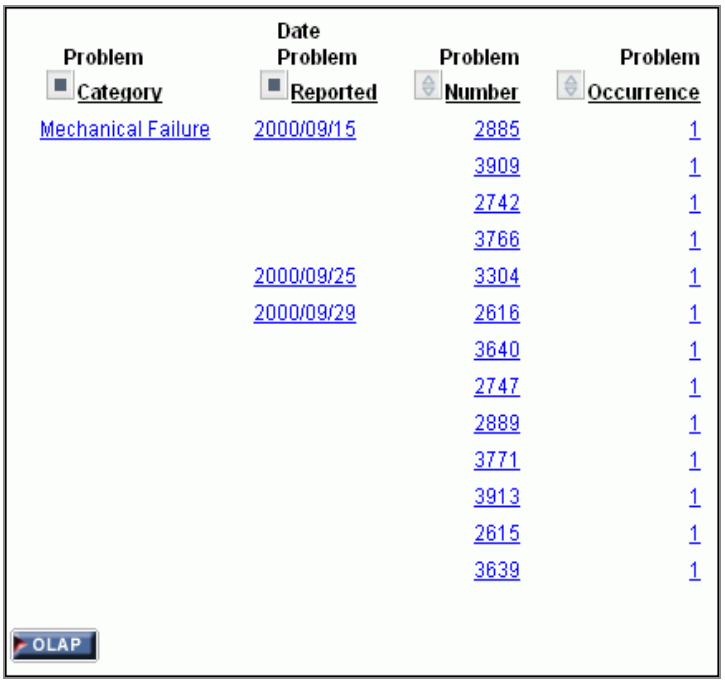
1. Run **OLAPREP9**.

   As shown in the following images, the report shows problem information reported over the course of several years.



Problem Category	Date Problem Reported	Problem Number	Problem Occurrence
Incorrect Labeling	1998/04/05	693	1
		694	1
	1998/04/19	695	1
	1998/05/03	701	1
	1998/05/31	879	1
	1998/06/07	856	1
	1998/06/21	880	1
		614	1
	1998/07/05	859	1
	1998/07/26	824	1
		825	1
		996	1
	1998/08/02	826	1

The information falls into the following categories: incorrect labeling, missing components, physical damage, power failure, and remote failure.



Problem Category	Date Problem Reported	Problem Number	Problem Occurrence
Mechanical Failure	2000/09/15	2885	1
		3909	1
		2742	1
		3766	1
	2000/09/25	3304	1
	2000/09/29	2616	1
		3640	1
		2747	1
		2889	1
		3771	1
		3913	1
		2615	1
		3639	1

You want to restrict the information to problems reported between June 6, 2001 and July 6, 2001. From the OLAP Control Panel, you can limit data based on a range of

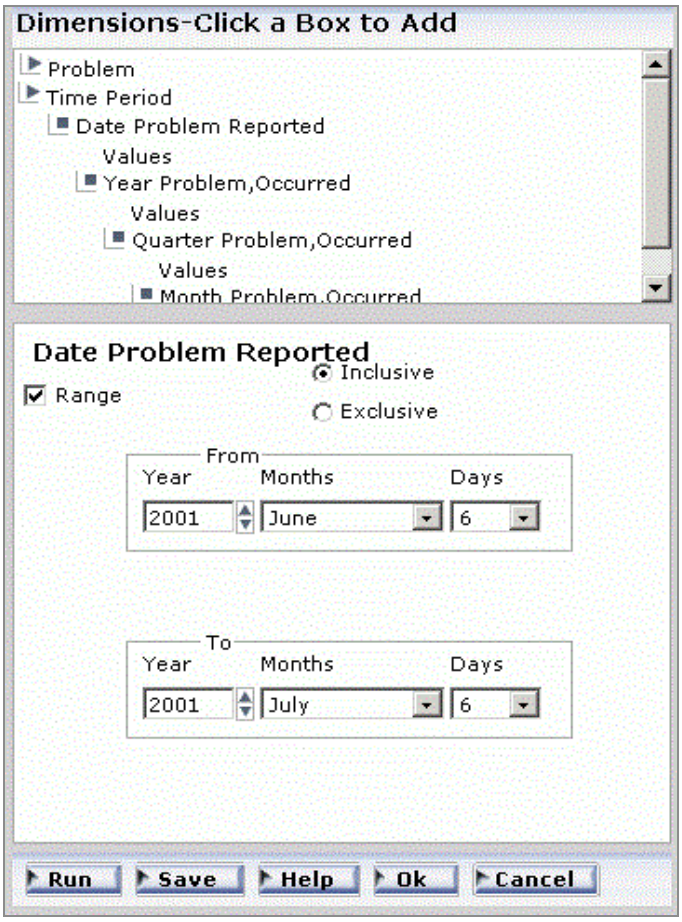
dates.

2. Click the **OLAP** button below the report to open the OLAP Control Panel.
3. Click the **Selection Criteria** button at the bottom-right of the OLAP Control Panel.

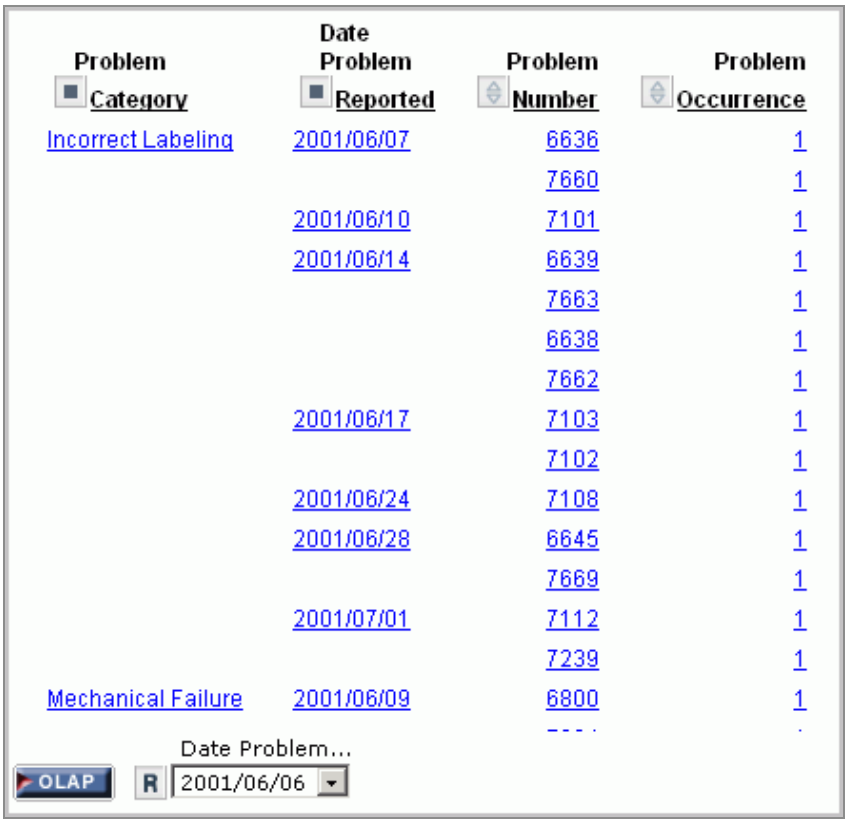
   The Selection Criteria pane opens.
4. In the Dimensions pane above the Selection Criteria pane, expand the **Time Period** hierarchy.
5. Click **Values** under Date Problem Reported.

   A new pane appears for Date Problem Reported, replacing the Selection Criteria pane. The pane includes a drop-down list for each selectable value (Year, Month, and Date).
6. Select the **Range** check box:
   - Inclusive and Exclusive option buttons appear. To show the range including the dates specified, choose Inclusive (the default).
   - From and To drop-down lists open for all selectable options. By default, the current date appears.
7. Specify values for the From date. For example:
   a. Change the current year to 2001 by using the spin controls or by typing in the text box.
   b. Select **June** from the Months drop-down list to change the current calendar month.
   c. Select **6** from the Days drop-down list to change the calendar day.
8. Specify values for the To date. For example:
   a. Change the current year to 2001 by using the spin controls or by typing in the text box.
   b. Select **July** from the Months drop-down list to change the current calendar month.
   c. Select **6** from the Days drop-down list to change the calendar day.

      The following image shows the selections.

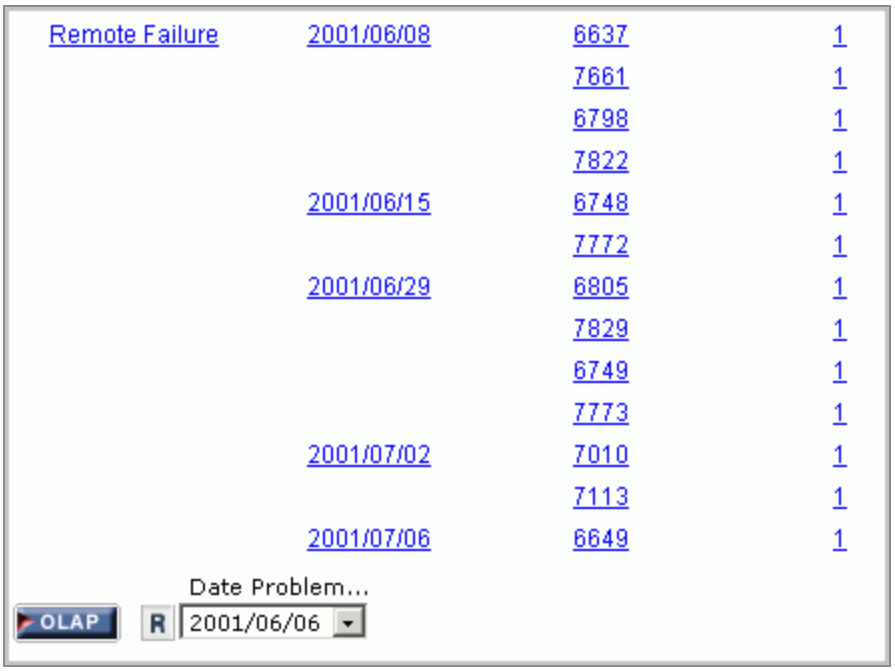


9. Click **Ok** to return to the Selection Criteria pane.
    a. To view the range of dates, click the down arrow in the drop-down list, then click **Ok** again.
    b. To report on information within the specified range of dates, accept the default (the **From (within range)** operator).
10. Click **Run** to execute the report, which now only displays problem information from June 6, 2001 to July 6, 2001, as shown in the following image.



The date element appears at the bottom of the window.

11. To view the range of dates, click the arrow in the drop-down list.



Add Dates to the Selections List Pane

From the OLAP Control Panel:

Procedure

1. Click **Selection Criteria**.

   The Selection Criteria pane opens.

2. In the Dimensions pane above the Selection Criteria pane, expand the dimension that includes the date field, and click **Values** under the desired field.

3. Specify the date you want to add by using the spin controls, drop-down lists, or by typing the value.

4. Click **Add**.

   The date appears inside the Selections list pane.

5. Click **Ok** to return to the Selection Criteria pane.

Delete Dates From the Selections List pane

From the OLAP Control Panel:

Procedure

1. Click **Selection Criteria**.

   The Selection Criteria pane opens.

2. In the Dimensions pane above the Selection Criteria pane, expand the dimension that includes the date field, and click **Values** under the desired field.

3. Select one or more dates that you want to remove from the Selections list pane.

4. Click **Delete** to remove the date.

5. Click **Ok** to return to the Selection Criteria pane.

Date Format Limitations

Note the following limitations when applying selection criteria to date elements:

- The Date selection pane does not support Julian dates. However, if you are using Julian dates, the Date controls still open.
- Dates containing only a day format (D, I2D, A2D) are not supported from the Date selection pane. Instead, the data source provides a list of values.
- The Range check box is enabled on the Date selection pane when the date format contains one of the following formats:
  - Any smart date format. For example, YMD, MDY, YYMD, MDYY, Q, M
  - A4YY
  - I4YY
  - I8YYMD
  - A8YYMD
  - I6YYM
  - A6YYM

Visualizing Trends

To make your reports more powerful, you can insert visual representations of selected data directly into the report output. These visual representations, which appear as a column of vertical or horizontal bar graphs adjacent to the numeric data, make relationships and trends among data more obvious.

You can apply data visualization graphs to selected measures from:

- Context menus in the report itself.

  This is the quickest way to apply data visualization bar graphs to numeric measures.
- The Measures control in the Selections panel.
- Check boxes in the Measures pane on the OLAP Control Panel.

Add a Column of Bar Graphs for a Numeric Measure

The quickest way to apply data visualization graphics is from the report itself:

Procedure

1. Right-click the title of a measure column.
2. Choose **Visualize** from the menu.

Result

The report runs automatically, displaying a column of bar graphs following the selected measures column.

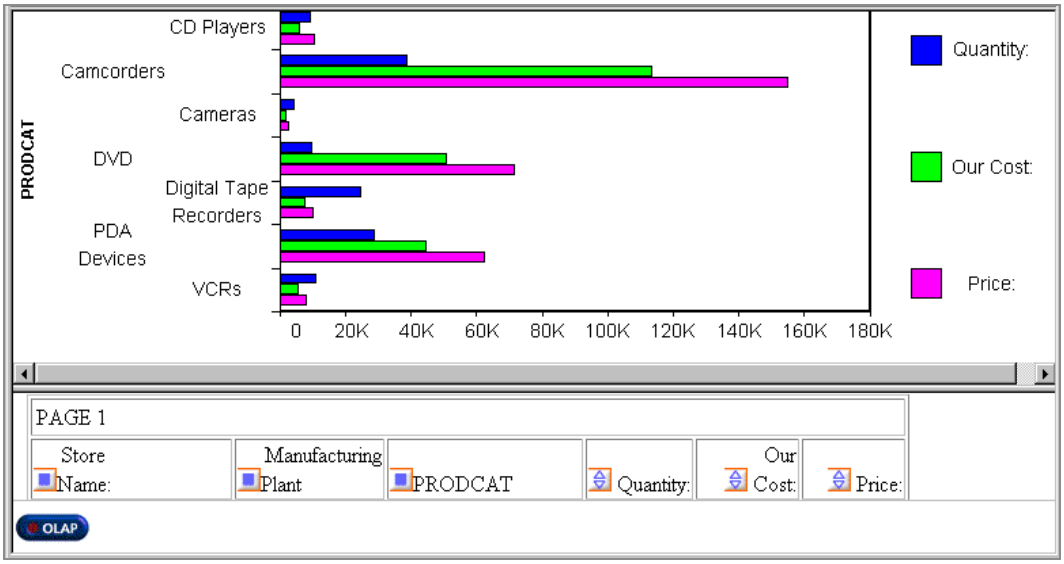
Tip: To remove the bar graphs, right-click the measure column title and choose **Remove Visualize** from the menu.

Displaying Graphs and Reports

When you graph a measure in an OLAP report, you select the specific data elements to include and then view the tabular report and a graphical representation of the identical information simultaneously in a split window. The graph appears in a frame in the top half of the window to facilitate comparison.

To create a graph, the data in the report must include at least one numeric measure and one sort field (By or Across). The Graph control is activated in the Selections panel or the OLAP Control Panel when these basic requirements are met.

The following image includes three sort fields (Store Name, Manufacturing Plant, and PRODCAT) and three numeric measures (Quantity, Our Cost, and Price), displayed as horizontal bar charts for quick comparison.



You can request a graph from an OLAP report, from the Selections panel, or from the OLAP Control Panel:

- From an OLAP report, you can create a vertical bar chart to represent the data in a selected measure.
- From the Selections panel or the OLAP Control Panel, you can create seven different types of graphs and apply them to one or more measures:
    - Vertical Bar (This is the default graph type.)
    - Vertical Line
    - Vertical Area
    - Horizontal Bar

- Horizontal Line
- Horizontal Area
- Pie

If you choose to graph more than one measure, you can employ different graph types to suit the data in each column, with the following restrictions:

- When you select Vertical or Horizontal Bar, Line, or Area as the controlling graph style for a measure, you can apply any combination of these styles to other measures. For example, the first measure can appear as bars, the second measure as lines, and the third measure as areas. All measures must have the same orientation (vertical or horizontal).
- When you choose Pie as the controlling graph style, you can use only pie charts for other measures.

For details about supported combinations, see Displaying Graphs and Reports.

Note: If the drill-down capability has been enabled for the dimensions in a report, the same functionality is automatically enabled for graphs. You can drill down from one graphical representation of your data to another.

Combining Graph Styles and Measure Styles in OLAP Graphs

The following table lists the available style combinations in the second column for each graph style in the first column.

Controlling Graph Style	Potential Measure Styles
Vertical Bar (default)	Vertical Bar (default)
	Vertical Line
	Vertical Area

Controlling Graph Style	Potential Measure Styles
Vertical Line	Vertical Line (default)
	Vertical Bar
	Vertical Area
Vertical Area	Vertical Area (default)
	Vertical Bar
	Vertical Line
Horizontal Bar	Horizontal Bar (default)
	Horizontal Line
	Horizontal Area
Horizontal Line	Horizontal Line (default)
	Horizontal Bar
	Horizontal Area
Horizontal Area	Horizontal Area (default)
	Horizontal Line
	Horizontal Area
Pie	Pie

Graph a Measure From the Selections Panel

Procedure

1. Click the down arrow to the left of the Graph control to open a drop-down pane containing all the numeric measures in the current report.

   There is a check box to the left of each measure and a graph button to the right of each measure. All check boxes are unchecked by default and all graph buttons are grayed (inactive) by default.

2. Select a check box associated with a measure.

   The graph button to the right of the measure becomes active. The default graph style is Vertical bar.

3. Toggle through the seven graph style icons until you reach the one you want to apply to the selected measure.

4. Repeat steps 2 and 3 for any other measures you want to graph.

   For a list of graph types that can be defined, see Displaying Graphs and Reports.

5. Click **Run** on the band below the Selections panel.

   The graph opens in a separate frame above the report and Selections panel.

Graphing Multiple Measures From the Selections Panel

This example contains two measures, Balance and CANADA_DOLLAR, sorted by Continent. You would like to see graphical representations of both measures. To contrast the graphical information, you use a different graph type for each one.

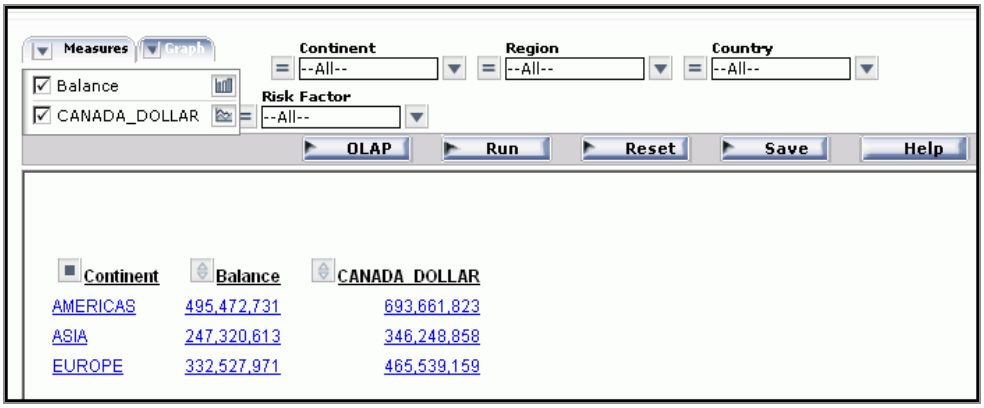
1. Run **OLAPREP4**.

2. Right-click the **Region** field and select **Delete** from the menu to limit the report to the fields you want to graph (one dimension, Continent, and two measures, Balance and CANADA_DOLLAR).

3. In the Selections panel above the report, click the arrow to the left of the Graph control to list the measures.

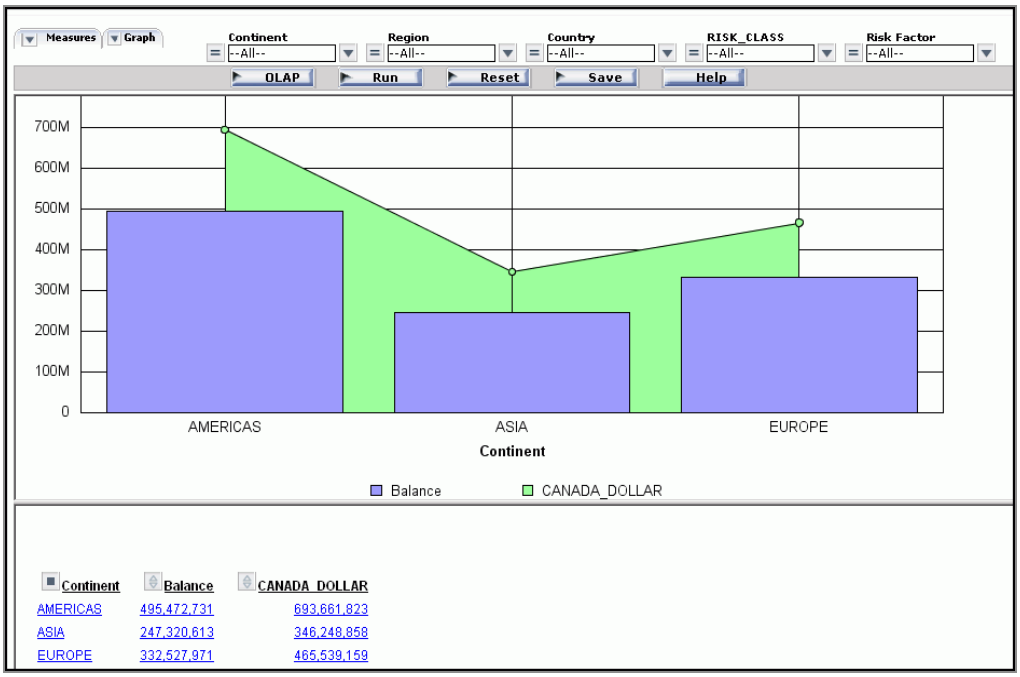
   - Click the **Balance** measure check box, then choose the **vertical bar** icon to the right of the measure. (This is the default graph type.)
   - Click the **CANADA_DOLLAR** measure check box, then toggle through the graph icons until you see the **vertical area** graph .

As shown in the following image, the Selections panel has the Graph control listing Balance represented as a vertical bar and CANADA_DOLLAR represented as a vertical area.



4. Click **Run** on the band below the Selections panel to generate the graphs.

   The following image shows the results of the graph selections.



Create a Pie Chart From the Selections Panel

Procedure

1. Run **OLAPREP2**.

   The report shows order information for stores that sell electronic products from Century Corporation. Audio Expert shows the highest numbers, with orders of digital products significantly exceeding analog.

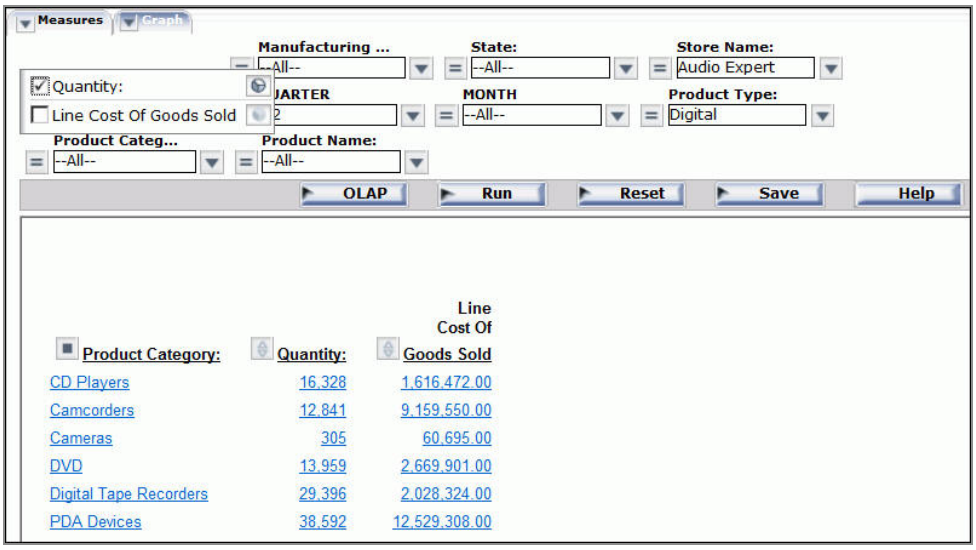
   You want a clearer picture of how the digital orders break down by product so you decide to create a pie chart.

2. Click **Digital** for Audio Expert in Q2 to hone in on the data you want to graph.

   The report now shows the Quantity and Line Cost of Goods Sold for several digital products sold at Audio Expert in Q2, as shown in the following image.

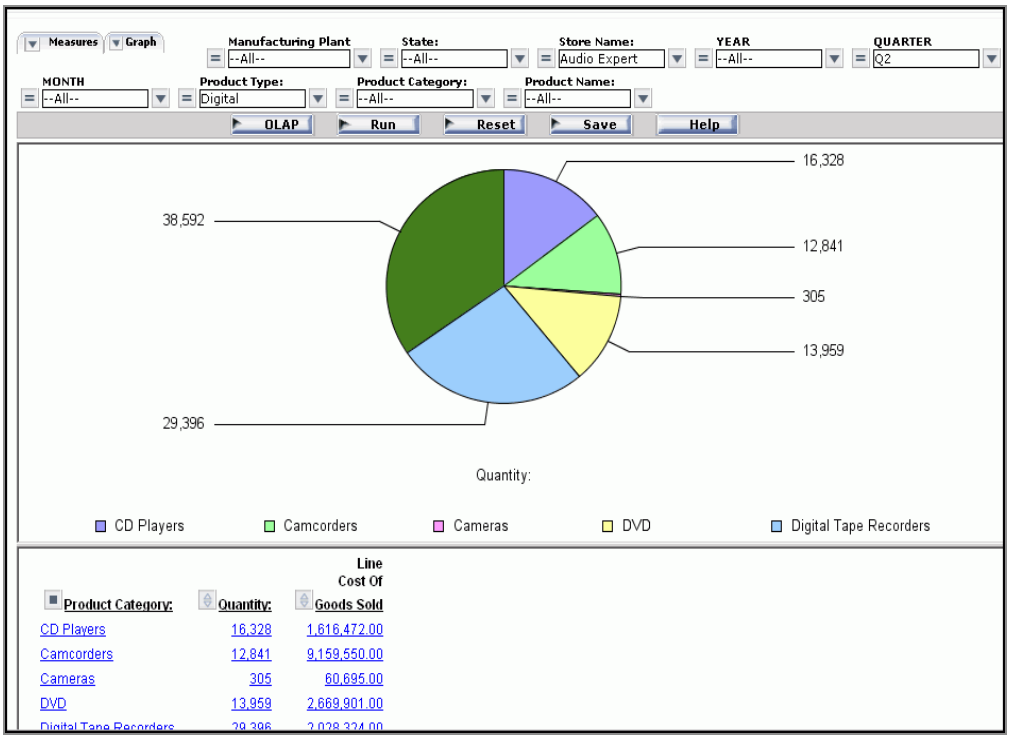
Product Category:	Quantity:	Line Cost Of Goods Sold
CD Players	16,328	1,616,472.00
Camcorders	12,841	9,159,550.00
Cameras	305	60,695.00
DVD	13,959	2,669,901.00
Digital Tape Recorders	29,396	2,028,324.00
PDA Devices	38,592	12,529,308.00

3. Right-click **Quantity** and choose **Show Panel** to open the Selections panel.
4. In the Selections panel, click the arrow to the left of the Graph control, then click the check box for **Quantity** and toggle through the graph options until you reach the **pie** icon, as shown in the following image.



5. Click **Run** on the band below the Selections panel.

   As shown in the following image, the graph appears in a pane above the report. You can see at a glance that PDA Devices constituted about 1/3 of digital sales at the Audio Expert store in Q2.



Graph a Measure from the OLAP Control Panel

Procedure

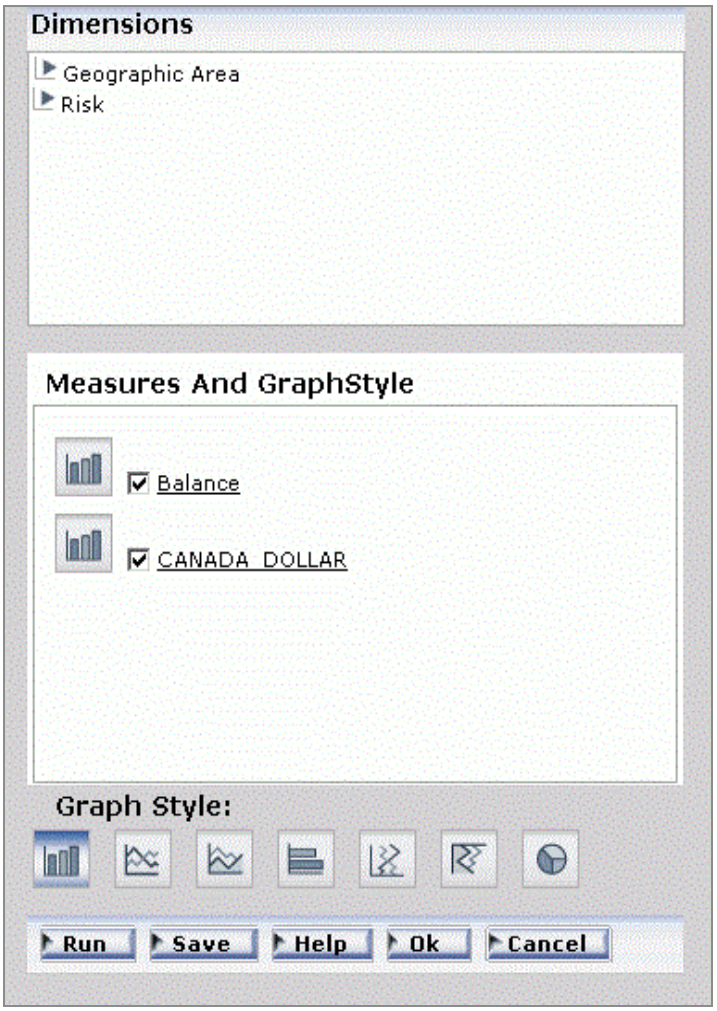
1. Run **OLAPREP4**.
2. Open the OLAP Control Panel.
3. Select the **Show Graph** check box located below the Measures pane.

   Note that the contents of the Drill Down and Drill Across panes determine the X-axis fields. When there are multiple drill (X-axis) fields, multiple graphs appear vertically stacked in the same frame. The measures appear as Y-axis fields on the graphs you display.
4. Click the **Graph** icon adjacent to the Show Graph check box.

   The Measures and Graph-Style pane opens.

   Check boxes associated with the available measures are checked by default.
5. Click one of the seven icons at the bottom of the window to set a controlling graph style.
6. Select the check boxes for the measures you wish to graph.

   The graph icon corresponding to the controlling graph style appears next to each selected measure.
7. Click the icon next to a measure to choose a different graph style from the supported combinations, as shown in the following image.



8. Click **Ok** to return to the main OLAP Control Panel window with all the graph settings retained.
9. Click **Run** to display the graphs and the tabular report in a split window.

Result

Note:

- If you select the Show Graph check box and click **Run** without selecting a controlling graph style, the default style (Vertical Bar) is applied.
- If you click **Run** without selecting the Show Graph check box, a tabular report appears without a graph.
- If you select at least one measure in the Measures and GraphStyle pane without selecting the Show Graph check box, when you click **Ok**, the system automatically

selects the Show Graph check box. The tabular report appears with a graph.

- You cannot choose to graph alphanumeric or date fields. If there are no numeric measures, the Show Graph check box and the Graph button are disabled.

Controlling the Display of Measures in a Report

While you cannot add new measures to an OLAP report without returning to the original report request, you can adjust the display of the measures in the report in several ways. You can:

- Stack measures in rows.
- Change the order of measure columns.
- Hide and expose measures.
- Add a column of data visualization bar graphs following any numeric measure.

Stacking Measures

When you have more than one measure in an OLAP report, you can stack the measures in separate rows within the same column to reduce the width of the report.

You cannot apply data visualization bar graphs to stacked measures.

Display Stacked Measures

Procedure

1. Open the OLAP Control Panel.
2. Select the **Stack Measures** check box to display measures in separate rows under one column.
3. Click **Run** to execute your report.

Result

Tip: To restore the standard display, deselect the **Stack Measures** check box and rerun the report.

Displaying Stacked Measures

1. Run **OLAPREP4**.

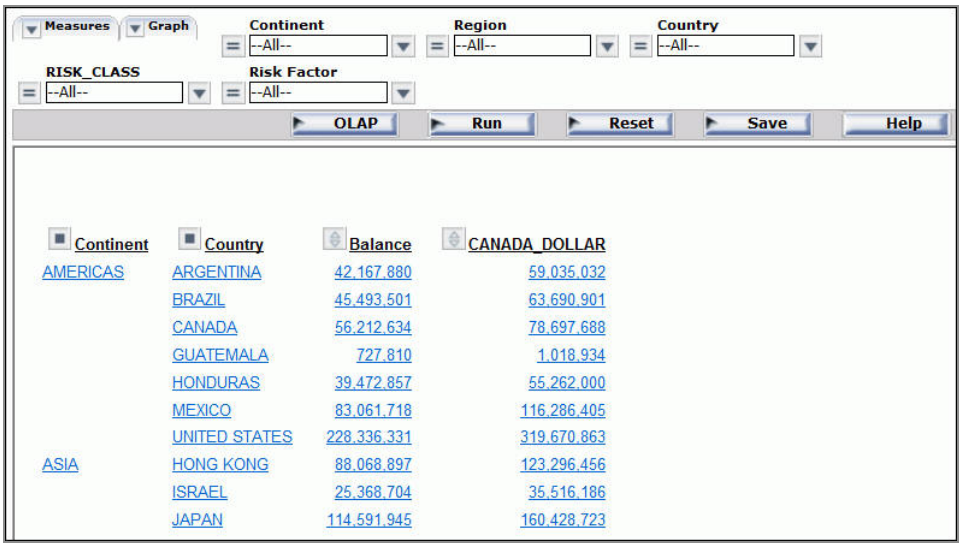
   Initially, this report is sorted vertically by Continent and Risk_Class and horizontally by Region, and the measures (Balance and CANADA_DOLLAR) appear as separate columns.

2. For this example, you will not need the Region dimension, but you will need the Country dimension. You can quickly make these changes to the report:

   a. Right-click **Region** and select **Delete** from the menu.

   b. Right-click **Continent** and select **Unhide** from the menu, then select **Country** from the secondary menu.

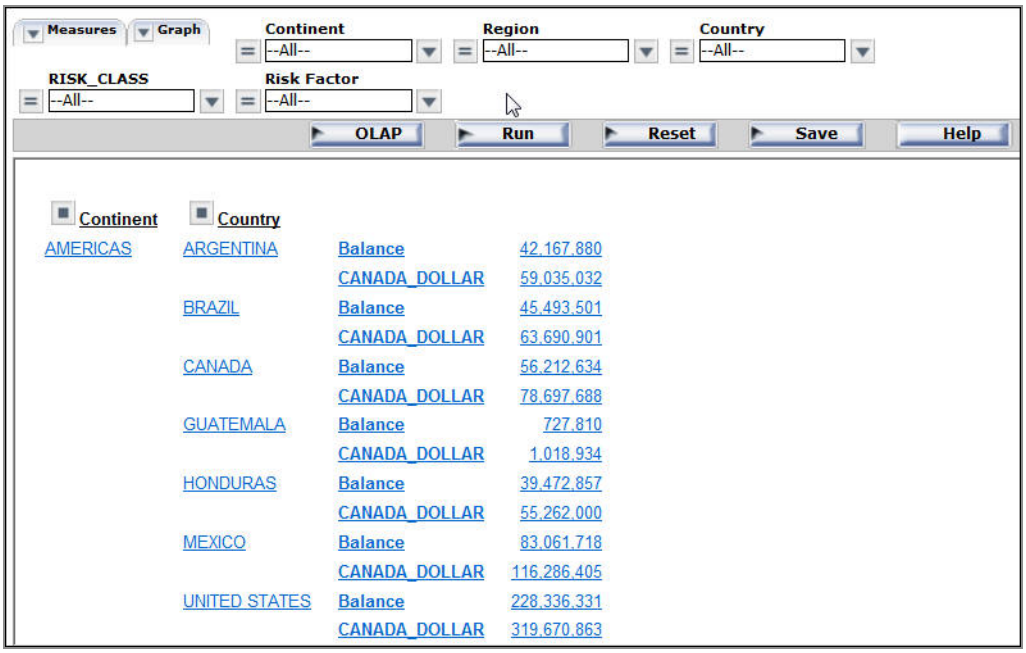
      The report now displays data by Continent followed by Country, as shown in the following image.



      You wish to show the measure titles and data values in rows.

3. Click the **OLAP** button on the band below the Selections panel to open the OLAP Control Panel.

4. Click the **Stack Measures** check box below the Measures pane.
5. Click **Run** to execute the report and display the titles and values of the measures stacked over each other in separate rows, as shown in the following image.



Changing the Order of Measure Columns

You can change the order in which measure columns are presented in the report.

Reposition Measure Columns in an OLAP Report

To reposition a numeric column, drop the field into a new column position.

The cursor changes to a plus sign (+) to indicate acceptable places into which you can drop the field. (Unacceptable positions are indicated by a circle with a slash cross the center.)

Repositioning Measure Columns

1. Run **OLAPREP2**.

As shown in the following image, the column for the Quantity measure precedes the column for the Line Cost of Goods Sold measure.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00
	eMart	Analog	97,128	21,152,262.00
		Digital	108,221	24,990,368.00
Q2	AV VideoTown	Analog	11,781	2,663,655.00
		Digital	27,377	5,928,507.00
	Audio Expert	Analog	57,944	11,868,758.00
		Digital	111,421	28,064,250.00

2. To change the order of columns, drop Line Cost of Goods Sold before Quantity.

   The cursor changes to a plus sign (+) to designate where you can drop the field. The report, as shown in the following image, now displays Quantity as the last column.

QUARTER	Store Name:	Product Type:	Line Cost Of Goods Sold	Quantity:
Q1	AV VideoTown	Analog	3,969,296.00	18,449
		Digital	5,109,400.00	22,206
	Audio Expert	Analog	16,467,146.00	78,449
		Digital	25,092,678.00	105,983
	City Video	Analog	1,315,015.00	6,287
		Digital	1,607,513.00	7,196
	Consumer Merchandise	Analog	1,542,036.00	6,980
		Digital	3,251,090.00	14,957
	TV City	Analog	3,772,119.00	19,077
		Digital	10,128,967.00	41,307
	Web Sales	Analog	124,366.00	545
		Digital	190,201.00	829
	eMart	Analog	21,152,262.00	97,128
		Digital	24,990,368.00	108,221

Hiding and Displaying Measures

You can hide and expose measures from an OLAP report, the Selections panel, or the OLAP Control Panel.

Hide or Expose a Measure From the Report

- To hide a measure column, right-click the column title and choose **Hide** from the menu. The column is automatically removed from the display.
- To expose a hidden measure column, right-click a displayed measure and choose **Unhide** from the menu. A secondary menu lists any hidden measures.

  Choose the one you want to re-expose in the report.

Tip: If you want to add a new measure to the report, you must return to the original request and add the field there.

Hiding and Exposing a Measure From the Report

1. Run **OLAPREP2**.

   The report includes two measures: Quantity and Line Cost of Goods Sold.

2. Right-click the **Line Cost of Goods Sold** and choose **Hide** from the menu, as shown in the following image.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00

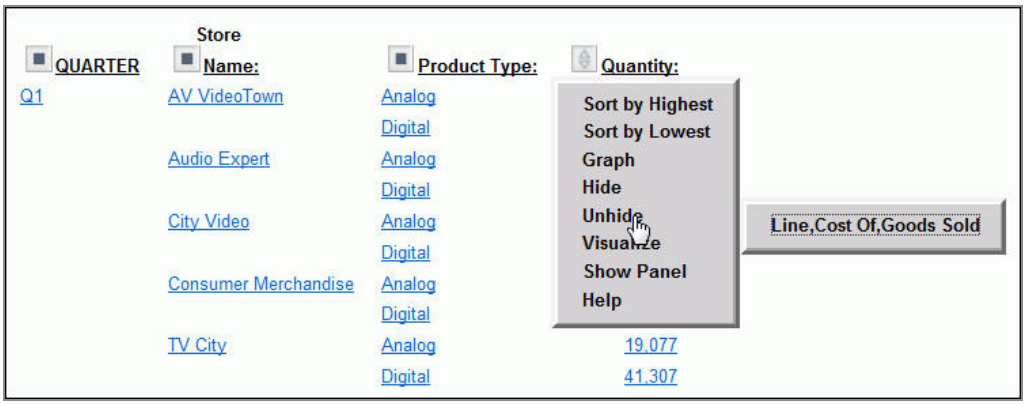
   Note: The options available may vary, depending on your OLAP format settings.

   The report runs and displays only the Quantity measure.

3. Right-click **Quantity** and select **Unhide**.

   A secondary menu displays the hidden measure.

4. Select **Line,Cost Of,Goods Sold** to redisplay Line Cost of Goods Sold, as shown in the following image.



Note: The options available may vary, depending on your OLAP format settings.

The report now displays the Line Cost of Goods Sold column.

Hide or Display a Measure From the Selections Panel

Procedure

1. Click the down arrow to the left of the Measures control to display a list of the measures in the report.
2. Click the check box next to a measure to display or hide it.

   The check box toggles through three positions:

   - **Unchecked:** To hide a measure, deselect its check box.
   - **Checked:** To expose a hidden measure, select its check box.
   - **Graph:** You can use the same check box to display a column of data visualization bar graphs for numeric measures. This setting is represented as a graph symbol in the check box. For details, see Visualizing Trends.

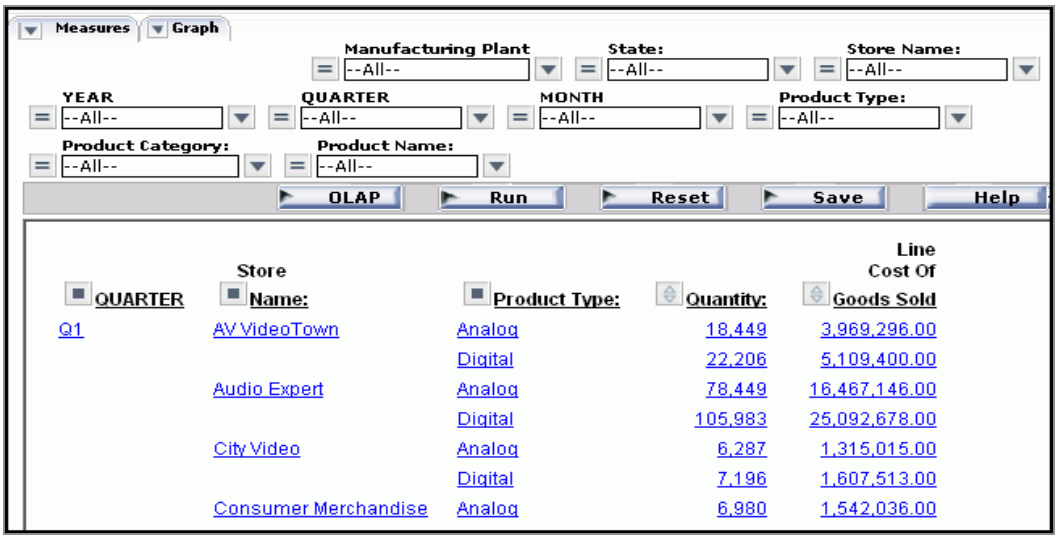
Hiding and Exposing a Measure Column From the Selections Panel

1. Run **OLAPREP2**.

   Because of the OLAP settings selected for this report, the Selections panel is hidden. For this example, you will need to expose it.

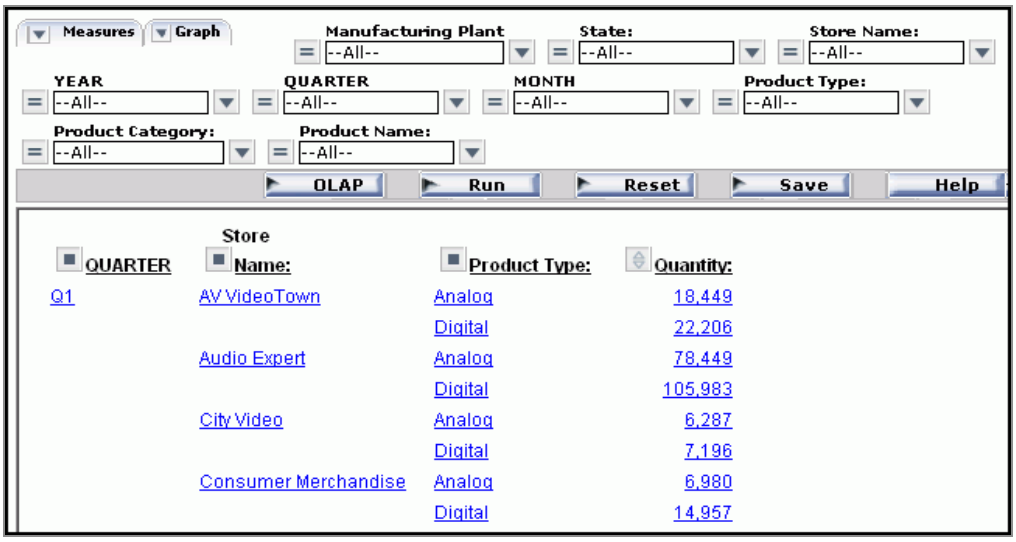
2. Right-click **QUARTER** and select **Show Panel** from the menu.

   As shown in the following image, two measures (Quantity and Line Cost of Goods Sold) appear in the report.

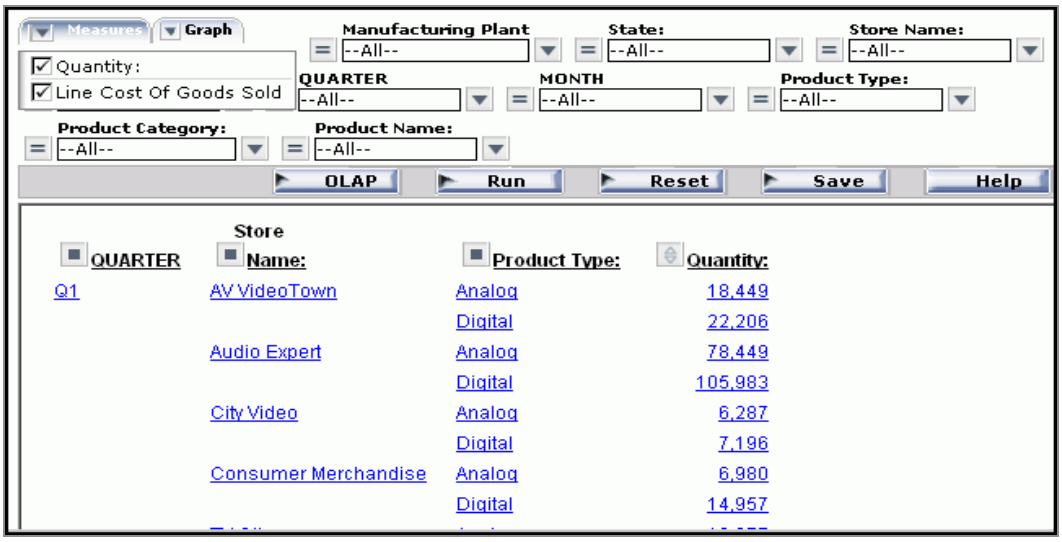


3. In the Selections panel, click the arrow to the left of the Measures control to list the measures in the report. Notice that both measures are checked.
4. To hide **Line Cost of Goods Sold**, deselect the check box next to this field.
5. Click **Run** on the band below the Selections panel.

   Only Quantity now appears, as shown in the following image.



6. Open the Measures control again and recheck **Line Cost of Goods Sold**, as shown in the following image.



7. Run the report again.

   The output now looks as it originally did.

Display or Hide a Measure from the OLAP Control Panel

Procedure

1. Open the OLAP Control Panel.
2. In the Measures pane, click the check box next to a measure to display or hide it.

   The check box toggles through three positions:

   - **Unchecked:** To hide a measure, deselect its check box.
   - **Checked:** To expose a hidden measure, select its check box.
   - **Graph:** You can use the same check box to display a column of data visualization bar graphs for numeric measures. This setting is represented as a graph symbol in the check box. For details, see Visualizing Trends.
3. Click **Run** to execute your report.

Adding and Removing Dimensions

Since all of the values in a dimensions hierarchy are available in an OLAP report, you can add dimensions to the OLAP report at any time, without returning to the original report request. You can add dimensions from an OLAP report and from the OLAP Control Pane.

Add a Dimension Element from the OLAP Control Panel

Procedure

1. Open the OLAP Control Panel.
2. Select a report layout pane (Drill Down or Drill Across) to indicate how you want the new sort dimension to be used in the report.
3. Expand a dimension in the Dimensions pane at the top of the window, then click the

dimension element you want to add to the designated layout pane. The new dimension is added to the bottom of the list.

4. If you wish to change the position of the new sort field, click the up arrow to reposition it.
5. Click **Run** to execute your report with the new settings.

Adding a Dimension Element from the OLAP Control Panel

1. Run **REP2**.

   Initially, the report is sorted by quarter, store, and Product Type, as shown in the following image.

QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	Analog	18,449	3,969,296.00
		Digital	22,206	5,109,400.00
	Audio Expert	Analog	78,449	16,467,146.00
		Digital	105,983	25,092,678.00
	City Video	Analog	6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00
	eMart	Analog	97,128	21,152,262.00
		Digital	108,221	24,990,368.00
Q2	AV VideoTown	Analog	11,781	2,663,655.00
		Digital	27,377	5,928,507.00
	Audio Expert	Analog	57,944	11,868,758.00
		Digital	111,421	28,064,250.00

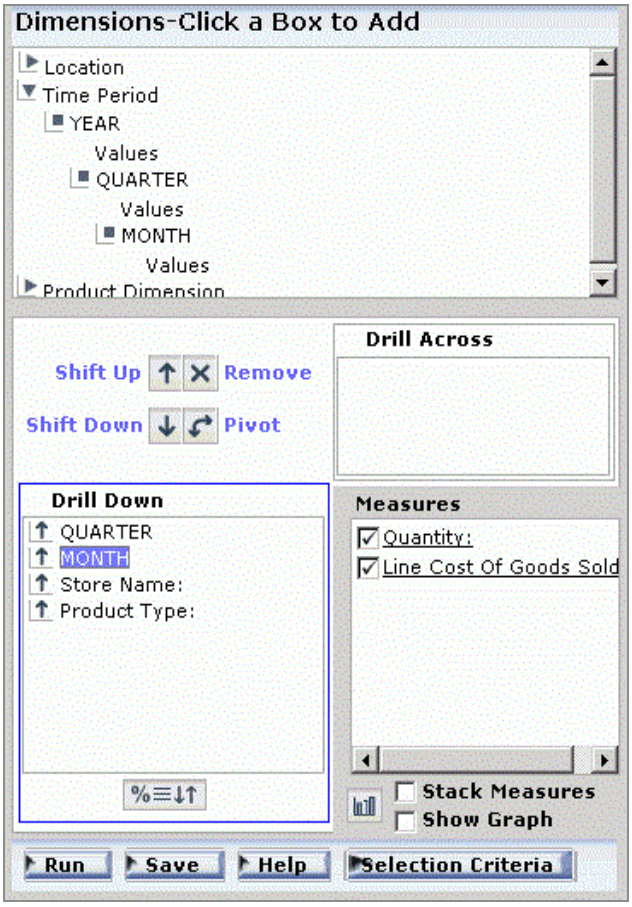
   You want to sort by month within each quarter.

2. Click the square icon next to QUARTER to open the OLAP Control Panel.

3. In the OLAP Control Panel:

   a. Expand the **Time Period** dimension and click **MONTH**. It is added to the bottom of the Drill Down list.

   b. Click the **Shift Up** arrow twice to move MONTH below QUARTER, as shown in the following image.



4. Click **Run** at the bottom of the OLAP Control Panel.

   The report is now sorted by quarter, month, store, and Product Type, as shown in the following image.

QUARTER	MONTH	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	01	AV VideoTown	Analog	147	35,280.00
			Digital	1,426	299,504.00
		Audio Expert	Analog	11,061	2,281,228.00
			Digital	14,062	3,432,741.00
		City Video	Analog	1,097	199,968.00
			Digital	1,382	339,594.00
		Consumer Merchandise	Analog	1,801	369,868.00
			Digital	3,580	800,913.00

Delete a Dimension Element From the Report

Right-click the dimension column you wish to remove and choose **Delete** from the menu.

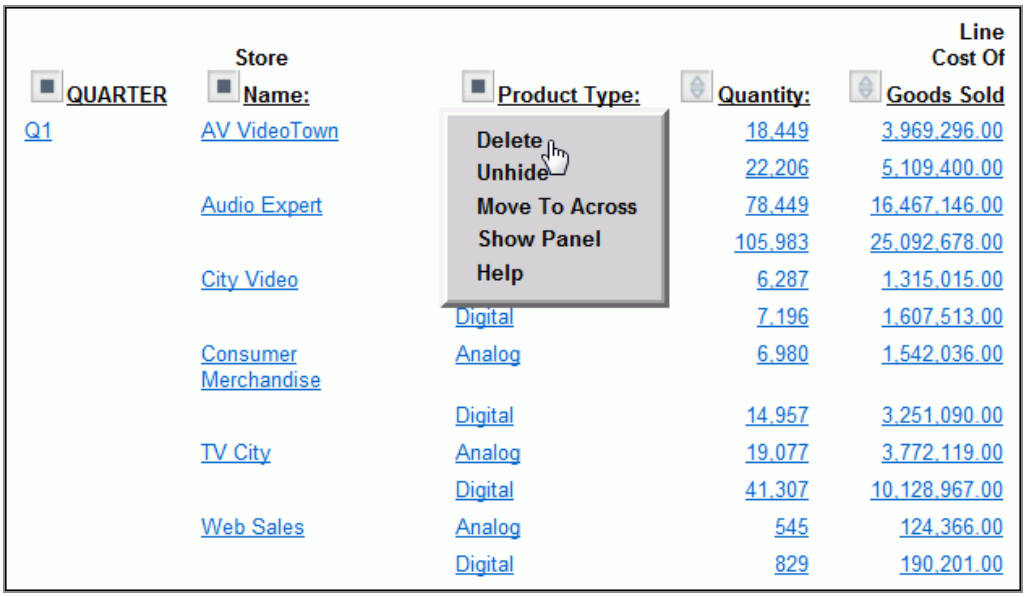
The report runs automatically.

Deleting a Dimension Element From the Report

1. Run **OLAPREP2**.

   Initially, the report is sorted by quarter, store, and Product Type. You wish to remove Product Type as a sort category.

2. Right-click the **Product Type** column and choose **Delete** from the menu, as shown in the following image.



QUARTER	Store Name:	Product Type:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown		18,449	3,969,296.00
			22,206	5,109,400.00
	Audio Expert		78,449	16,467,146.00
			105,983	25,092,678.00
	City Video		6,287	1,315,015.00
		Digital	7,196	1,607,513.00
	Consumer Merchandise	Analog	6,980	1,542,036.00
		Digital	14,957	3,251,090.00
	TV City	Analog	19,077	3,772,119.00
		Digital	41,307	10,128,967.00
	Web Sales	Analog	545	124,366.00
		Digital	829	190,201.00

Note: The options available may vary, depending on your OLAP format settings.

The report runs automatically. The new report is sorted by quarter and store, as shown in the following image.

QUARTER	Store Name:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	40,655	9,078,696.00
	Audio Expert	184,432	41,559,824.00
	City Video	13,483	2,922,528.00
	Consumer Merchandise	21,937	4,793,126.00
	TV City	60,384	13,901,086.00
	Web Sales	1,374	314,567.00
	eMart	205,349	46,142,630.00
Q2	AV VideoTown	39,158	8,592,162.00
	Audio Expert	169,365	39,933,008.00

Delete a Dimension Element from the OLAP Control Panel

Procedure

1. Select the element in the Drill Down or Drill Across pane. The buttons above the pane

become active.

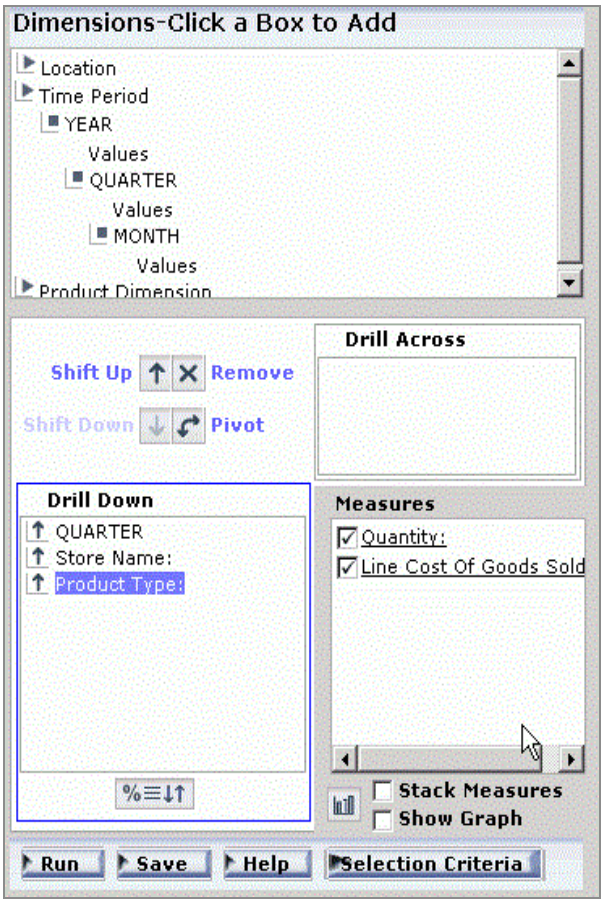
2. Click **Remove**. The element is deleted from the Drill Down or Drill Across pane.
3. Click **Run** to see the new report.

Deleting a Dimension Element from the OLAP Control Panel

The following is an example of deleting a dimension element from the OLAP Control Panel.

1. Run **OLAPREP2**.

   Initially, the report is sorted by quarter, store, and Product Type. You wish to remove Product Type as a sort category.
2. Click the square icon next to QUARTER to open the OLAP Control Panel.
3. Select **Product Type** in the Drill Down pane, as shown in the following image.



4. Click the **Remove** button.
5. Click **Run** at the bottom of the OLAP Control Panel.

   The new report is sorted by quarter and store, as shown in the following image.

QUARTER	Store Name:	Quantity:	Line Cost Of Goods Sold
Q1	AV VideoTown	40,655	9,078,696.00
	Audio Expert	184,432	41,559,824.00
	City Video	13,483	2,922,528.00
	Consumer Merchandise	21,937	4,793,126.00
	TV City	60,384	13,901,086.00
	Web Sales	1,374	314,567.00
	eMart	205,349	46,142,630.00
Q2	AV VideoTown	39,158	8,592,162.00
	Audio Expert	169,365	39,933,008.00

Saving OLAP Reports

The following are related to saving OLAP reports:

- Administrators, users, and developers can save their reports in Excel, PDF, or active report format.
- Field name referencing is uniform throughout the OLAP product. For example, the AS or TITLE phrases will appear in reports generated using the OLAP Selections panel or the OLAP Control Panel (OCP).

Uniform Field Name Referencing in OLAP

The manner in which a developer designs a report with regard to field referencing carries through to both the OCP and the OLAP Selections panel. Field referencing does not differ between the report and the OCP and OLAP Selections panel. Field references by AS, TITLE, or field name, are uniform in the report output and OLAP controls.

Saving and Displaying OLAP Reports and Graphs in Other Formats

OLAP reports and graphs appear in your browser in HTML format. You can display the report and corresponding graph in PDF, Excel, and active report formats, and in folders within the Repository path.

The following save and/or display options are available:

- PDF is useful when you want a report or graph to maintain its presentation and layout regardless of a browser or printer type.

  When you choose the PDF format, the report appears in Adobe Acrobat Reader and the graph continues to appear above it in a browser window. If you print from Acrobat, only the report will be printed.

- Excel is useful when you want to convert a large database to a spreadsheet or save a report and graph in a commonly used Office tool.

  - Excel is a binary display format with limited formatting support. The computer on which the report is being displayed must have Microsoft Excel installed.

    Drill-downs of any kind are not supported.

  - Excel 2000 supports most StyleSheet attributes, allowing for full report formatting. The computer on which the report is being displayed must have Microsoft Excel 2000 or higher installed.

    When you choose Excel 2000, the report and graph are displayed in the same tool where you can manipulate the data using Excel options. From Excel, you can print both the report and the graph.

    When you save in Excel 2000 format, only explicit drill-downs (based on parameters passed from the base report to the drill-down report) continue to work. Automatic drill-downs on Dimensions and Measures are not supported in Excel.

- Using an active report is useful when you want to create a self-contained HTML report that is designed for offline analysis. You can interact with the data, using analysis options similar to those found in an Excel workbook, without any connection to a server.

In the Repository path:

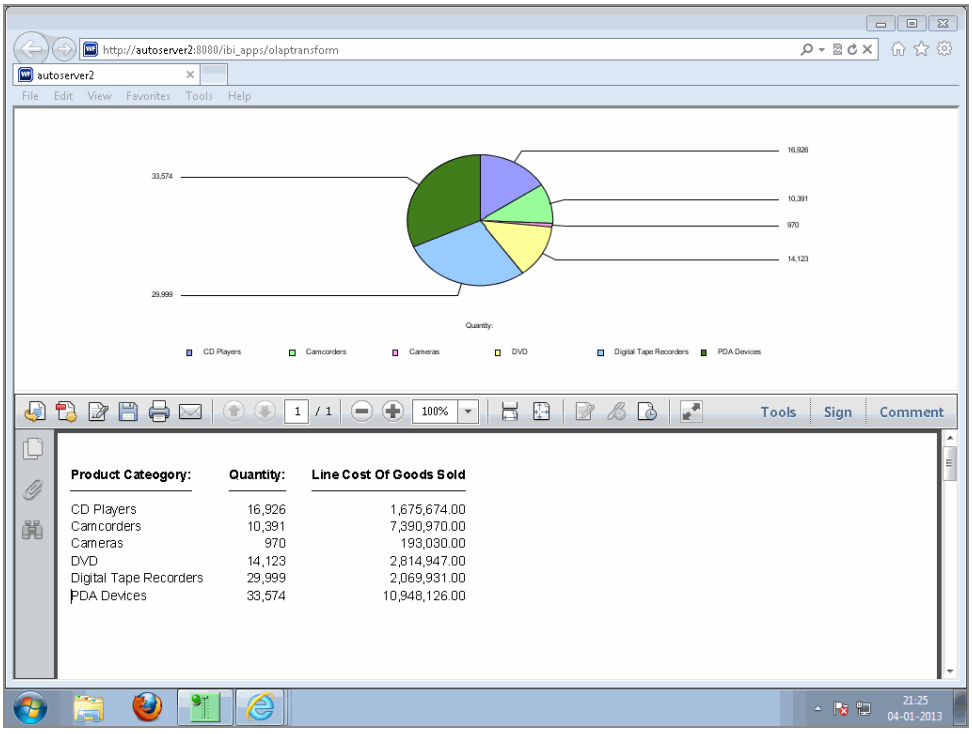
- A user can save the HTML output in the private content folder.
- A developer can save the HTML output in the workspace folders they are authorized to create content in and publish the content to users.

Display an OLAP Report and Graph in PDF Format

Procedure

1. Open the OLAP Control Panel.
2. Click **Save** at the bottom of the window.
3. Select **Display as a PDF Report**.

   The graph appears in the browser above the report, while a second browser opens and launches the report output in Adobe Acrobat, as shown in the following image.



Tip: If you wish, you can save and print the PDF report from Adobe Acrobat.

Save an OLAP Report and Graph as an Excel File

Procedure

1. Open the OLAP Control Panel.
2. Click **Save** at the bottom of the panel.
3. Select **Save the data in an Excel file**, **Save the data in an Excel 2000 file**, or **Save the data in an Excel 2000 file with formulas**.

   Note: The Excel Save options are controlled by the WebFOCUS Client configuration OLAP settings. For more information, see the *ibi™ WebFOCUS® Security and Administration* manual.
4. Follow the instructions to export the data.

Display an OLAP Report and Graph as an HTML Active Technologies Report

Procedure

1. Open the OLAP Control Panel.
2. Click **Save** at the bottom of the panel.
3. Select **Display as Active Report (Offline Analysis)**.
4. The report and graph appear in a separate window as an HTML active report.

Saving OLAP Reports and Graphs in the Private Content Folder

In the Repository path, you can save an OLAP report and graph in your private content folder.

1. Open the OLAP Control Panel.
2. Click **Save** at the bottom of the panel.
3. Select **Save as private content**.

   A secondary window opens.
4. Enter a descriptive name and click **Ok** to save the graph and the tabular report. If the workspace of the OLAP report is restricted not to allow the creation of private content, select a workspace from the **Save in** drop-down menu in the Save dialog box. If there are no workspaces listed, contact your administrator to obtain authorization to save private content to a workspace.

Note: There is no limit to the number of characters in the label legend of a graph, but long labels may appear truncated.

Troubleshooting OLAP Reports

This topic describes common problems that you might encounter when working with OLAP-enabled reports.

The report is not OLAP enabled. Ensure that **Run with OLAP** is selected in the Properties window for the report

The OLAP Control Panel does not display dimensions. Ensure that the metadata for the report uses the WITHIN attribute to create one or more hierarchical dimensions.

You cannot drill-down or roll up a dimension. Ensure that the metadata for the report uses the WITHIN attribute to create one or more hierarchical dimensions.

You cannot include additional measures in the report. You cannot use the OLAP Control Panel to include measures that are not included in the original report request.

Tip:

- You can specify NOPRINT in the report procedure to make measures available but not visible in the original report. Deselect the **Visible** check box on the General tab of the Field Properties dialog pane accessible from the Properties menu in Report Painter, thereby including the measure as a NOPRINT field in the report procedure. Then, the measure does not appear when you first run the report, but you can select to include the measure and run the report again.
- To print all fields in a report you must specify each field. The PRINT * command

(which prints the entire contents) is not recognized by OLAP.

When you click the OLAP button in a graph, the OLAP Control Panel does not open. OLAP currently is not implemented for GRAPH requests. Deselect **Run with OLAP** in the Report Properties window.

If you use Print *, an error occurs. If you create a procedure that uses Print *, and you then OLAP enable and run the procedure (selecting **Save output as PDF file** from the OLAP Control Panel), an error is returned. OLAP does not support Print *. Instead, it prints the entire contents.

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