

# Oracle9i Discoverer Desktop

User's Guide

Version 9.0.2 for Windows

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# Contents

<b>Send Us Your Comments .....</b>	<b>xi</b>
<b>Preface.....</b>	<b>xiii</b>
Intended Audience .....	xiii
Structure.....	xiii
Related Documents.....	xiii
Conventions.....	xiv
Prerequisites to run Discoverer Desktop .....	xiv
<b>Part I   Getting Started</b>	
<b>1   Discoverer Desktop Overview</b>	
1.1   New Discoverer Desktop Features .....	1-1
1.2   How Discoverer Desktop Works .....	1-2
1.2.1   What is a Business Area? .....	1-5
1.2.2   Understanding Workbooks and Worksheets.....	1-5
1.2.3   About Worksheets and Queries .....	1-7
1.3   Opening a Workbook.....	1-8
1.3.1   Opening Another Workbook.....	1-13
1.3.2   Opening Workbooks in a Non-Oracle Database .....	1-15
1.3.3   Looking at a Workbook's Properties.....	1-15
1.3.4   Switching to Another Worksheet.....	1-16
1.4   Saving a Workbook .....	1-18
1.4.1   Deleting a Workbook.....	1-20

1.4.1.1	Deleting a Workbook from Your Computer .....	1-21
---------	--	------

## 2 What You See on the Screen

2.1	The Workbook Window .....	2-1
2.2	The Four Types of Display .....	2-5
2.2.1	Table Layout.....	2-5
2.2.1.1	Table Layout with Page Details .....	2-5
2.2.2	Crosstab Layout.....	2-6
2.2.2.1	Page Detail Crosstab Layout .....	2-7
2.2.2.2	A Note About Crosstabs .....	2-7
2.3	Selecting Sections of a Worksheet.....	2-8
2.3.1	About the Axis Item Markers .....	2-13
2.3.2	Selecting Axis Item Markers.....	2-15
2.4	Seeing the Next Page of Data.....	2-15
2.5	Formatting a Worksheet.....	2-18
2.5.1	Rearranging the Columns on Tables .....	2-18
2.5.2	Resizing Columns.....	2-20
2.5.3	Formatting Headings, Data, and Titles.....	2-21
2.5.3.1	Editing Column Header Text .....	2-21
2.5.3.2	Reformatting a Column Heading on a Table .....	2-22
2.5.3.3	Reformatting a Column Heading on a Crosstab .....	2-23
2.5.3.4	Reformatting Data.....	2-24
2.5.3.5	Adding Bars to Numeric Data.....	2-24
2.5.4	Formatting a Worksheet Title.....	2-26
2.5.4.1	Adding Text Variables to Titles .....	2-28
2.5.4.2	Adding Bitmaps to Titles .....	2-31
2.5.5	Renaming a Worksheet.....	2-33
2.6	Some Helpful Shortcuts.....	2-34
2.6.1	Right Mouse Support.....	2-34
2.6.2	Resizing Windows.....	2-35

## 3 Presenting Data on a Graph

3.1	The Features of a Graph .....	3-2
3.1.1	The Graph Tool Bar.....	3-4
3.2	Creating a Graph .....	3-5

3.2.1	Updating the Data on a Graph.....	3-9
3.3	Modifying a Graph.....	3-10
3.3.1	Selecting a New Graph Type.....	3-11
3.3.2	Displaying the Graph Legend and X Labels.....	3-12
3.3.3	Resizing the Window and Graph.....	3-13
3.3.4	Reference Lines and Pull-outs on a Graph.....	3-14
3.3.5	Rotating Graphs.....	3-16
3.3.6	Changing the Graph's Colors and Patterns.....	3-19
3.3.6.1	Creating Custom Patterns.....	3-20
3.3.6.2	Creating Custom Colors.....	3-21

## Part II Working with Discoverer Desktop

### 4 Pivoting, Drilling, and Sorting Data

4.1	Pivoting Data.....	4-1
4.1.1	Pivoting for Comparison and Analysis.....	4-2
4.1.2	Pivoting Data on a Table.....	4-6
4.1.3	Pivoting Data on a Crosstab.....	4-9
4.1.3.1	Producing erroneous results when pivoting.....	4-10
4.1.4	Duplicating Tables and Crosstabs.....	4-12
4.2	Drilling Into and Out of Data.....	4-14
4.2.1	Drilling down using the Drill icon.....	4-15
4.2.2	Drilling out using the Drill icon.....	4-17
4.2.3	Drill examples.....	4-19
4.2.4	Quick Drilling by Double-Clicking.....	4-29
4.2.5	Drilling with the Drill Dialog Box.....	4-30
4.3	Sorting Data.....	4-35
4.3.1	Sorting Data on Tables.....	4-35
4.3.1.1	Sorting Data Within Data.....	4-38
4.3.1.2	Group Sorting.....	4-41
4.3.1.3	Sorting from the Tool Bar.....	4-43
4.3.2	Sorting Data on Crosstabs.....	4-43
4.3.2.1	Sorting Crosstabs Data from the Tool Bar.....	4-44
4.3.2.2	Sorting Across an Axis.....	4-46
4.3.2.3	Sorting Crosstabs Data from the Sort Crosstab Dialog Box.....	4-46

## 5 Working with Discoverer Desktop

5.1	Using Discoverer Tools to Analyze Your Data .....	5-1
5.1.1	Viewing Tool Definitions for Specific Items.....	5-3
5.1.2	Creating New Tool Definitions .....	5-4
5.1.3	Editing Existing Tool Definitions.....	5-4
5.1.4	Deleting Tool Definitions .....	5-5
5.2	Finding Exceptions to Data .....	5-6
5.2.1	Creating a New Exception .....	5-9
5.2.2	Editing an Exception.....	5-13
5.3	Totaling Numeric Data .....	5-14
5.3.1	Creating a New Totals Definition .....	5-19
5.3.2	Totals and Calculations .....	5-24
5.3.3	Editing a Totals Definition .....	5-25
5.4	Using Percentages .....	5-26
5.4.1	Using the Percentages Tool.....	5-27
5.4.2	Creating a New Percentages Definition.....	5-30
5.4.3	Editing a Percentage Definition .....	5-33
5.5	Finding Data that Meets Conditions.....	5-34
5.5.1	Creating Conditions.....	5-37
5.5.2	Editing and Removing Condition Expressions.....	5-42

## 6 Reporting Results

6.1	Preparing Reports for Printing .....	6-1
6.1.1	Selecting Print Options .....	6-3
6.1.2	Previewing a Report.....	6-8
6.2	Sending Reports with E-Mail Messages.....	6-9
6.3	Exporting to Other Applications .....	6-12
6.3.1	Exporting to Oracle Reports .....	6-13
6.3.2	Exporting to Microsoft Excel .....	6-16
6.4	Producing Scheduled Reports .....	6-18
6.4.1	Seeing the Results of a Scheduled Report.....	6-20
6.4.1.1	Viewing Scheduled Workbooks when connected as an Oracle Applications User .....	6-22
6.4.2	Working with the Scheduling Manager.....	6-22
6.4.2.1	Viewing Errors.....	6-26

6.5	Sharing Workbooks.....	6-26
-----	------------------------	------

## 7 Building Worksheets and Workbooks

7.1	Building a New Workbook or Worksheet .....	7-2
7.1.1	Selecting Display Type .....	7-2
7.1.2	Selecting the Data.....	7-3
7.1.3	Arranging the Layout .....	7-8
7.1.4	Selecting Conditions for the Data .....	7-9
7.1.5	Sorting the Data in a New Worksheet or Workbook.....	7-11
7.1.6	Selecting Calculations for the Data.....	7-13
7.2	Editing a Worksheet.....	7-14
7.2.1	Adding and Deleting Items on a Worksheet.....	7-15
7.2.2	Editing the Layout .....	7-16
7.2.3	Editing the Conditions .....	7-17
7.2.4	Editing the Sorting .....	7-18
7.2.5	Editing Calculations.....	7-19

## Part III Advanced Concepts

### 8 Advanced Discoverer Desktop Features

8.1	Retrieving All Rows and Counting the Number of Rows.....	8-1
8.1.1	Refreshing the Worksheet.....	8-2
8.2	Creating Parameters.....	8-2
8.2.1	Loading Multiple Values .....	8-7
8.3	Creating Calculations .....	8-8
8.4	Creating Advanced Conditions.....	8-13
8.4.1	Creating Subqueries.....	8-17
8.4.1.1	Using Correlated Items .....	8-18
8.4.2	Editing a Subquery.....	8-20
8.5	Setting Options .....	8-20
8.6	Using Command-Line Options .....	8-22
8.7	Using SQL.....	8-24
8.7.1	Looking at the SQL Statements for Worksheets .....	8-24
8.7.2	Importing SQL.....	8-25

8.7.3	Using the Discoverer Execution Plan .....	8-26
8.7.3.1	About Summaries.....	8-26
8.7.3.2	Types of Summary .....	8-26
8.7.4	Looking at an SQL Execution Plan .....	8-27
8.7.5	Viewing the SQL and Execution Plan with an 8.1.6+ database.....	8-28
8.7.6	Viewing SQL with a pre-8.1.6 database (not using a Materialized View) .....	8-29
8.7.7	Configuring the SQL type used.....	8-33
8.7.8	Exporting SQL without running a Workbook .....	8-34

## A Calculation Examples

A.1	Getting More Information .....	A-1
A.2	About the examples in this chapter .....	A-1
A.3	Additional formatting.....	A-1
A.4	Simple Calculation Examples .....	A-2
A.4.1	Calculate the number of rows returned by a query .....	A-2
A.4.2	Calculate a 25% increase in sales.....	A-3
A.4.3	Convert text to upper-case.....	A-4
A.5	Analytic Function Examples .....	A-5
A.5.1	Analytic Function Categories .....	A-6
A.5.2	Calculations and Drilling Into and out of data .....	A-6
A.5.3	About The Analytic Function Template .....	A-6
A.5.4	Ranking Function Examples.....	A-8
A.5.4.1	About Ranking.....	A-8
A.5.4.2	Assign Ranks to sales figures .....	A-8
A.5.4.3	Assign Ranks to sales figures within Region .....	A-9
A.5.4.4	Show the top three selling Cities per Region .....	A-10
A.5.4.5	Show the top three and bottom three selling Cities per Region.....	A-11
A.5.5	Banding Function Examples.....	A-13
A.5.5.1	About Banding.....	A-13
A.5.5.2	Producing equi-width Bands (1).....	A-14
A.5.5.3	Producing equi-width Bands (2).....	A-16
A.5.5.4	Producing equi-height Bands.....	A-18
A.5.6	Windowing Function Examples.....	A-19
A.5.6.1	About Windowing .....	A-19
A.5.6.2	Calculate a three month moving sales average .....	A-20



A.5.6.3	Show the cumulative values of sales.....	A-21
A.5.7	Reporting Function Examples.....	A-22
A.5.7.1	About Reporting Functions.....	A-22
A.5.7.2	Calculate annual sales by Year.....	A-22
A.5.7.3	Calculate annual sales by region.....	A-23
A.5.7.4	Calculate percentage of annual sales by Region.....	A-24
A.5.7.5	Calculate sales as a percentage of total Sales.....	A-25
A.5.8	Lag/Lead Function Examples.....	A-26
A.5.8.1	About Lag/Lead Functions.....	A-26
A.5.8.2	Compare sales figures across time.....	A-27
A.5.8.3	Calculate sales growth across time.....	A-28
A.5.8.4	Rank sales growth.....	A-29
A.5.9	Statistical Function Examples.....	A-30
A.5.9.1	About Statistics Functions.....	A-30
A.5.9.2	Calculate linear regression.....	A-30
A.6	More about the Analytic Function Template.....	A-32
A.7	Analytic Functions and Sequencing.....	A-33

## B Oracle Applications Support

B.1	Supported Features.....	B-1
B.2	Prerequisites.....	B-1
B.3	<b>Connect dialog settings for Oracle Applications Users.....</b>	<b>B-3</b>
B.3.1	Before you start.....	B-3
B.3.2	Connecting to Discoverer as an Oracle Applications User.....	B-4
B.3.3	Configuring the Oracle Applications user Connect dialog.....	B-6
B.3.3.1	<b>Entering details into the fields GWYUID/Password and FNDNAM.....</b>	<b>B-7</b>
B.3.4	Configuring Discoverer to use standard EULs.....	B-8
B.3.5	Connection Configuration.....	B-9
B.3.5.1	Editing your Discoverer shortcut icon.....	B-9
B.3.5.2	Specify a basic Connect.....	B-9
B.3.5.3	Specify a Connect with an automatic Responsibility.....	B-9
B.3.5.4	Bypass the Connect dialog with an automatic Connect.....	B-10

## C Discoverer OLE Support

C.1	Discoverer OLE Support.....	C-1
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**Glossary**

**Index**

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# Send Us Your Comments

Oracle9i Discoverer Desktop User's Guide, Version 9.0.2 for Windows

Part No: A90886-01

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# Preface

Welcome to Oracle9i Discoverer version 9.0.2! This guide explains how to use the Discoverer Desktop ad hoc query and analysis interface for business use.

## Intended Audience

This guide is designed for business professionals who want to view, analyze, and manipulate data using Discoverer. You may want to have Discoverer running on your computer while reading this guide, so you can follow the step-by-step explanations. If your Discoverer manager at your organization has not created a business area or workbook, you can use the sample database included with Discoverer.

## Structure

This guide is divided into three sections:

- **Part I Getting Started**, covers introductory material and explains the features you see on the screen.
- **Part II Working With Discoverer**, describes how to work with Discoverer to access, view, and analyze data in your database, and how to produce reports.
- **Part III Advanced Concepts**, explains more advanced features of Discoverer.

## Related Documents

For more information, see also:

- *Oracle9i Discoverer Administrator Administration Guide*
- *Oracle SQL Language Reference Manual*

## Conventions

The following conventions are used in this manual:

Convention	Meaning
<b>boldface text</b>	Boldface type in text indicates a command name, menu name, or other choice or selection.
<b>menu   command selection</b>	Boldface type separated by a vertical bar indicates a menu name and the command to select from the menu. For example, <b>File   Open</b> means choose the Open command from the File menu.
<i>italic text</i>	Italic type indicates a term defined in the text, the glossary, or in both locations.
< >	Angle brackets enclose user-supplied names.
[ ]	Brackets enclose optional clauses from which you can choose one or none.

## Prerequisites to run Discoverer Desktop

To run Discoverer Desktop, a Discoverer End User Layer must already exist. Your Discoverer manager must have created or upgraded the End User Layer using Oracle9i Discoverer Administrator (which is shipped as a component of Oracle9i Developer Suite Release 2).

# Part I

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## Getting Started





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# Discoverer Desktop Overview

This chapter explains the basic concepts of Oracle9i Discoverer Desktop. Being familiar with these concepts will help you work more effectively with Discoverer.

The topics covered in this chapter include:

- [New Discoverer Desktop Features](#)
- [How Discoverer Desktop Works](#)
- [Opening a Workbook](#)
- [Saving a Workbook](#)

## 1.1 New Discoverer Desktop Features

Discoverer Desktop version 9.0.2 provides support for the Discoverer End User Layer that is created and maintained by Discoverer Administrator version 9.0.2.

## 1.2 How Discoverer Desktop Works

Oracle9i Discoverer Desktop is a data access tool. You use it to view the information in your company's databases. The whole purpose of Discoverer is to help you—the business professional—view the data you want from a database, analyze it to support your business decisions, and create reports to keep track of things.

**Figure 1–1 Oracle Discoverer**

The screenshot shows the Oracle Discoverer Desktop interface. The title bar reads 'Oracle Discoverer - [Video Stores Analysis]'. The menu bar includes 'File', 'Edit', 'View', 'Sheet', 'Format', 'Tools', 'Graph', 'Window', and 'Help'. The toolbar contains various icons for file operations and data manipulation. The main window displays a report titled 'Analysis of Video Rentals and Video Sales' for the year 2000. The report is presented in a tabular layout with the following data:

	Region	Department	Profit SUM
> 1	Central	Video Rental	\$25,157
> 2		Video Sale	\$69,493
3			<b>Total for Central: \$94,651</b>
> 4	East	Video Sale	\$109,637
> 5		Video Rental	\$40,402
6			<b>Total for East: \$150,039</b>
> 7	West	Video Sale	\$52,092
> 8		Video Rental	\$23,521
9			<b>Total for West: \$75,613</b>
10			<b>Total for All Values: \$320,301</b>

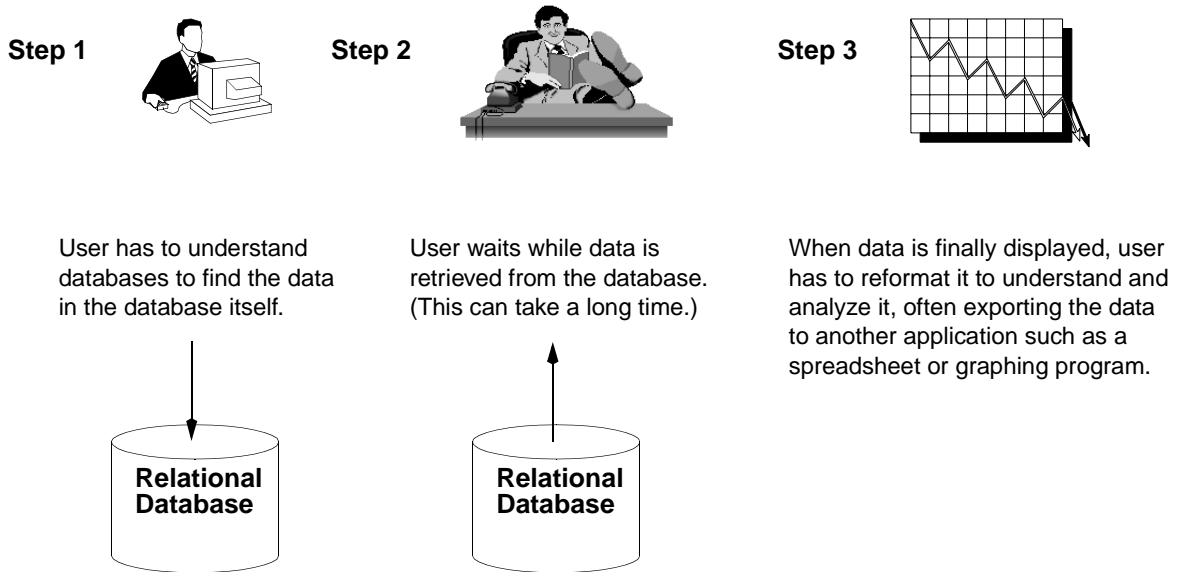
Discoverer solves many of the problems normally associated with databases so that now you can easily:

- Find data that you know is in the database.
- See data displayed quickly without waiting for the computer to spend a long time searching through the entire database.
- View data in a familiar format that is easy to read and understand.
- Analyze data using a wide array of techniques including drilling up and down through the data's details, finding data that meets certain conditions or that falls within ranges you specify, sorting data, comparing results from "what if" scenarios, and so on.
- Prepare reports of your analytical results and findings.
- Share data with others, and in other applications (such as Excel).

Discoverer uses a new, unique way of accessing data. Comparing Discoverer with previous data-access methods can help you understand the new concepts that you will use with the Discoverer Desktop.

The following two figures compare the old fashioned, data access methods with the new Discoverer methods.

**Figure 1-2 The Old-Fashioned Method of Data Access**



**Figure 1–3 The Discoverer Method of Data Access**

**Before you start working with Discoverer...**

Your company's Database Administrator identifies all the data needed by separate business areas—accounting, human resources, sales, manufacturing, projects, finance, and so forth.



The Database Administrator then organizes the data for each business area. Workbooks in the business areas contain the specific data needed for your various analysis tasks.



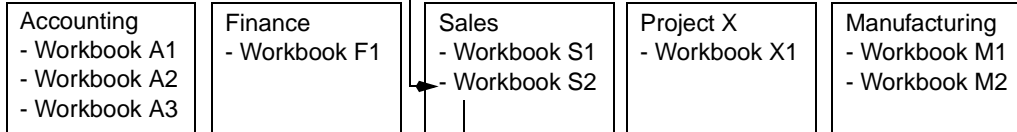
**So when you want to analyze data with Discoverer...**

**Step 1**



Open the workbook that contains the data you want to view and analyze.

**Business Areas and Workbooks**



**Step 2**

Start working. The workbook opens quickly and displays the data in a familiar format. You don't have to know anything about databases.

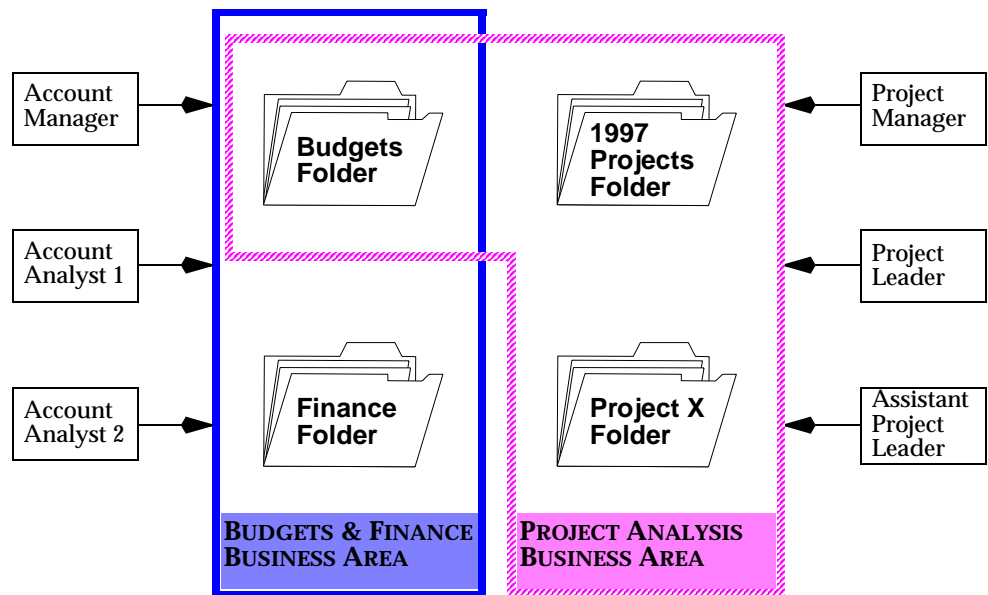
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	Region	Department	Profit SUM
1	Central	Video Rental	\$25,157
2		Video Sale	\$69,493
3	East	Video Sale	\$109,637
4		Video Rental	\$40,402
5	West	Video Sale	\$52,092
6		Video Rental	\$23,521

## 1.2.1 What is a Business Area?

A *business area* is a logical grouping of database tables or views that apply to your specific data requirements. For example, the accounting department wants data about budgets and finance, while project leaders want data specifically about their projects as well as about budgets. Although some of the data you need may be the same (such as the budgets folder as shown in the following figure), the exact combination of tables and views for each department is usually unique. Using Discoverer Administrator, your Database administrator tailors the grouping of data to provide you with the proper access to the precise data needed for analysis, decision support, and presentation of results.

**Figure 1–4 Business Areas and Folders**



## 1.2.2 Understanding Workbooks and Worksheets

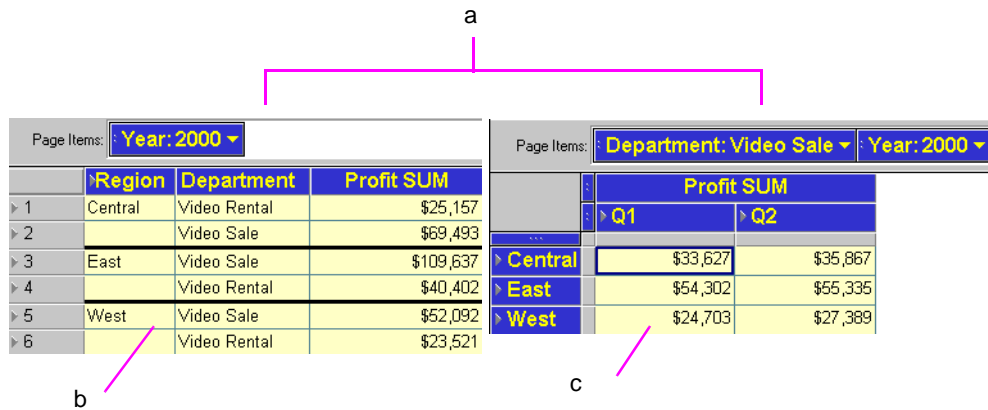
Think of a workbook as a three-ring binder filled with specific data for specific tasks. The workbook has pages, or *worksheets*, that contain data for the specific tasks. For example, if the workbook is for sales and profit data, one worksheet in it might be a table listing your profit for sales versus rentals. Another worksheet might be a comparison of your profit over the last two years by sales region.

The sample database that you receive with Discoverer contains data from a fictitious video store business. The sample data covers many topics including:

- Sales Region
- Year
- Department
- Sum of Profit
- Size of Store (in square feet)
- Type of Store Design (Compact, Modern, or traditional)
- Store Name, and so on.

Discoverer also comes with its own sample workbooks, that you can use to analyze the example data.

**Figure 1-5 Sample Worksheets**



Key to [Figure 1-5](#)

- a. These two worksheets are from the same workbook. They are both designed for analyzing profit.
- b. This worksheet is a table. It lists the data in a familiar tabular format.
- c. This worksheet is a crosstab. It shows the data in a more aggregate form that is usually better for data analysis than tables.

### 1.2.3 About Worksheets and Queries

A *query* is simply a search of the database that finds and retrieves the data you want. Each worksheet in a workbook contains the result of a query. So, when you see the term “query” while working with Discoverer Desktop, you can think of it as a worksheet with retrieved data.

## 1.3 Opening a Workbook

Your Database Administrator usually supplies the various passwords and server access instructions to log on to Oracle9i Discoverer Desktop and open a workbook. The following steps explain the basic process.

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The Database Administrator at your company will have designed the workbooks that you can open. If you have questions about the workbook names, whether you have access to them, the location of workbooks on company servers, and so on, see your Database Administrator.

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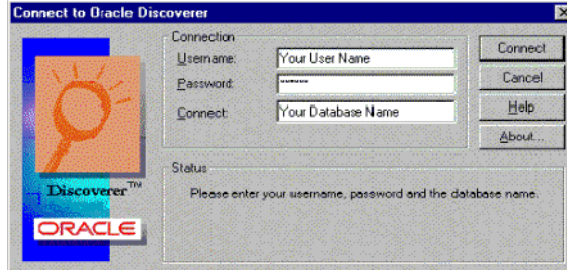
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To open a workbook:

1. At the Windows Desktop, choose Discoverer Desktop from the Oracle Discoverer 5 Start menu.

The Oracle Discoverer connect dialog appears (Figure 1-6). Your user name should already be in the **Username** box. If not enter it in the **Username** box.

**Figure 1-6 Connect to Oracle Discoverer**



2. In the Password box, enter your password
3. In the Connect box, enter the name of the database that you wish to use. See your Database Administrator for password and database name details.

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For information about connecting to an Oracle Applications EUL, see [Appendix , "This Appendix contains the following sections:"](#).

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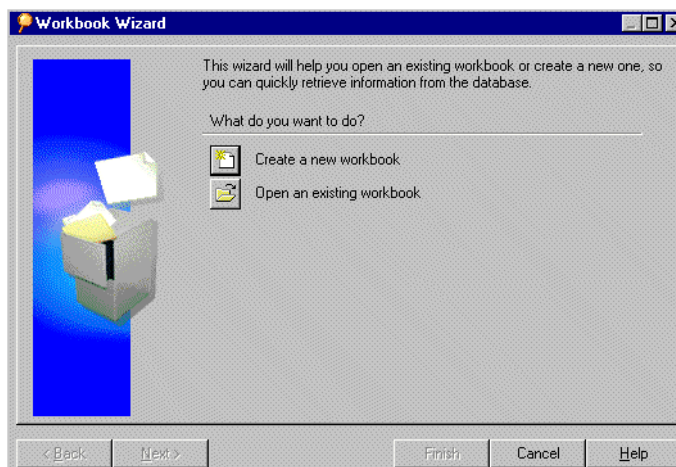
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4. Click Connect.

The first screen of the Workbook Wizard appears. The wizard steps you through the process to get the specific data you want to see.

**Figure 1–7 The Workbook Wizard**

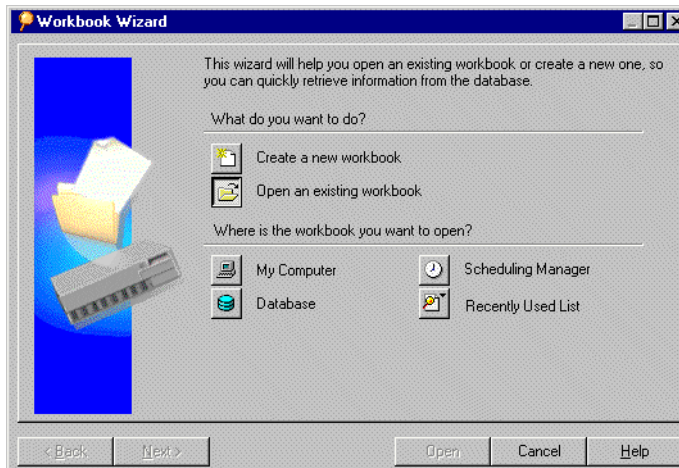


**Create a new workbook**—starts the process to create a new workbook. This option is not available if you don't have access rights granted by the Database Administrator. See [Chapter 7, "Building Worksheets and Workbooks"](#) for details about creating a new workbook.

**Open an existing workbook**—shows options for opening one of your existing workbooks.

5. Click Open an Existing Workbook. The next Workbook Wizard dialog box shows options for opening your existing workbooks:

**Figure 1–8** *Opening an Existing Workbook*

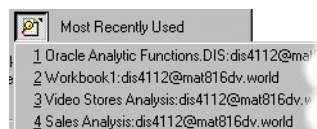


**My Computer**—opens a dialog box for selecting a workbook stored on your local computer or on a server on your business network.

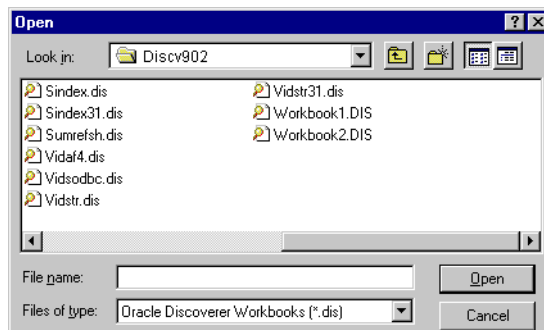
**Database**—opens a dialog box for selecting a workbook stored as part of a specific database. The workbook can be shared easily with others who have access to the database.

**Scheduling Manager**—displays a list of workbooks previously scheduled to run at a certain times (usually overnight, on a weekend, or at some periodic interval). Scheduled workbooks run automatically and are available when you need to open them.

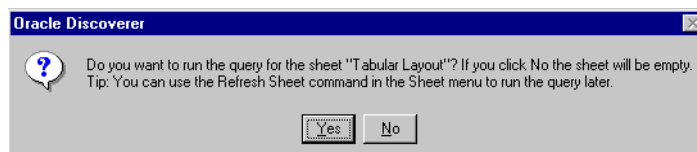
**Recently Used List**—shows the workbooks you've previously opened (see [Figure 1–9](#) for an example). If you usually work with the same workbooks on a daily basis, this option is the quickest way to open a workbook.

**Figure 1–9 A Discoverer Most Recently User Workbook List**

If you choose **My Computer** from the **Where is the workbook you want to open?** options, a dialog box appears for you to select the workbook to open:

**Figure 1–10 Select a Workbook to Open**

6. Select the workbook name and click Open, or just double-click the name. A dialog box asks if you want to run the query for the worksheet.

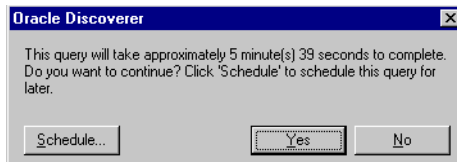
**Figure 1–11 Run the Query Confirmation**

A query causes Discoverer to find the most recent data to fill in the worksheet. Normally you click Yes because you want to see the most recent data associated with the sheet. Click No if you don't want to see the data in the worksheet. For example, click No if you want to create a new worksheet and don't need to see

the data on the existing worksheet. See [Chapter 7, "Building Worksheets and Workbooks"](#) for details to create a new worksheet.

7. Discoverer now evaluates the query to determine how much time it will take to open the workbook and shows you an estimate. Click **Yes** to see the data.

**Figure 1–12** *Time Estimate*



This dialog box is mainly for your convenience because, if the query time is more than a few minutes, you can be doing other work while Discoverer gets the data for the worksheet.

If you can't wait the estimated time, click No. Discoverer will remain open, but the worksheet will be empty.

If you click Yes, a dialog box shows you the progress and elapsed time while Discoverer is finding the data. At the end of the process, your workbook appears. Here's a sample:

Figure 1–13 A Discoverer Workbook

The screenshot shows the Oracle Discoverer interface for a workbook titled "Video Stores Analysis". The main data table is displayed in a tabular layout. The table has three columns: "Region", "Department", and "Profit SUM". The data is organized by region, with sub-totals for each region and a grand total for all values.

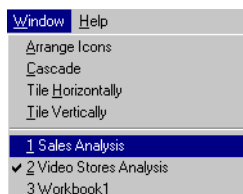
	Region	Department	Profit SUM
1	Central	Video Rental	\$25,157
2		Video Sale	\$69,493
3			<b>Total for Central: \$94,651</b>
4	East	Video Sale	\$109,637
5		Video Rental	\$40,402
6			<b>Total for East: \$150,038</b>
7	West	Video Sale	\$52,092
8		Video Rental	\$23,521
9			<b>Total for West: \$75,613</b>
10			<b>Total for All Values: \$320,301</b>

### 1.3.1 Opening Another Workbook

You can open several workbooks at a time and switch back and forth between them. This is an excellent way to compare data to find specific analytical results.

When several workbooks are open at the same time, use the Window menu to switch between them:

Figure 1–14 Window Menu

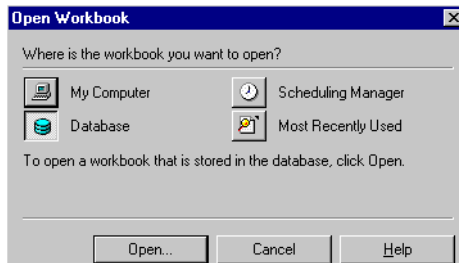


To open another workbook:

1. Choose **File | Open**.

The Open Workbook dialog box appears. Its options are the same as when you were opening the first workbook (see Figure 1–8 on page 1-10).

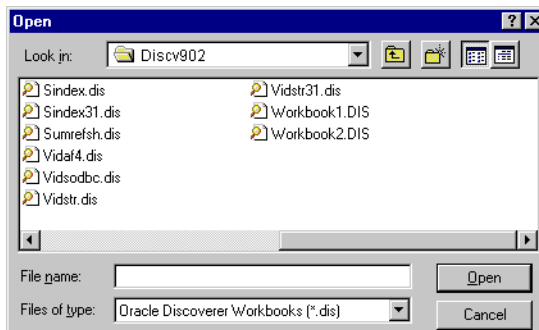
**Figure 1–15** *Open Workbook Dialog Box*



2. Click one of the options.

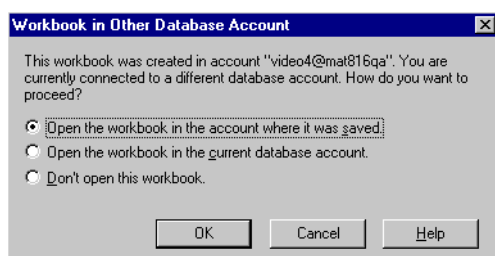
A dialog box for the selected Open Workbook type appears.

**Figure 1–16** *Selecting a Workbook from My Computer*



3. Select a workbook and click Open.

If the workbook you select is stored in another database account, a dialog box appears for you to open the new workbook.

**Figure 1–17** *Open a Workbook in Another Account*

4. Click one of the options and click OK.

If you select the first option in the dialog box, the workbooks currently open will close before the new workbook opens. A message gives you the option to not close the currently open workbooks.

**Note:** You can turn off this dialog box. See [Section 8.5, "Setting Options"](#).

### 1.3.2 Opening Workbooks in a Non-Oracle Database

If your business uses other, non-Oracle databases your Database Administrator can set up Discoverer to open workbooks in those databases. You can then use the features of Discoverer Desktop to access the data. However, depending on the type of database, you may not be able to use all the data access and analysis features available with Oracle databases

The basic process to open workbooks in the other, non-Oracle databases is essentially the same as opening a workbook in an Oracle database. Please see your Database Administrator for the correct steps to open the workbooks.

### 1.3.3 Looking at a Workbook's Properties

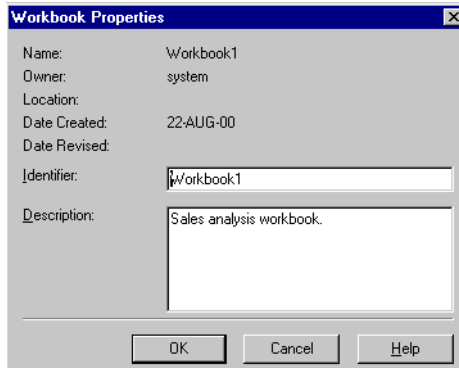
A workbook's *properties* provide basic information about the workbook.

To see a workbook's properties:

1. Open the workbook.
2. Choose **File | Manage Workbooks | Properties**.

The Workbook Properties dialog box appears showing information about the Workbook. You can record additional information about the workbook in the **Description** box.

**Figure 1–18 Workbook Properties Dialog Box**



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NOTE: Identifiers are unique names that Discoverer uses to identify EUL and Workbook elements, (e.g. Business Areas, Folders, Items etc). The default Identifier value is generated automatically by Discoverer.

**Do not change Identifiers except under the following circumstances:**

- The Identifier must be changed to comply with strict naming conventions.
- An element has been deleted and needs to be recreated with the same Identifier.

**If you do change an Identifier, you must update matching identifiers in other EULs to reflect the change.**

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3. Click dialog box.

### 1.3.4 Switching to Another Worksheet

The tabs on the bottom of the workbook window show the various worksheets in the workbook. Clicking a tab switches to the next worksheet.



The following figure shows only two tabs, but your workbook may have several worksheets—hence, more tabs.

**Figure 1–19 Switch to Another Worksheet**

Analysis of Video Rentals and Video Sales

Page Items: Year: 2000

	Region	Department	Profit SUM
1	Central	Video Rental	\$25,157
2		Video Sale	\$69,493
3			<b>Total for Central: \$94,651</b>
4	East	Video Sale	\$109,637
5		Video Rental	\$40,402
6			<b>Total for East: \$150,038</b>
7	West	Video Sale	\$52,092
8		Video Rental	\$23,521
9			<b>Total for West: \$75,613</b>
10			<b>Total for All Values: \$320,301</b>

a

b

Key to [Figure 1–19](#)

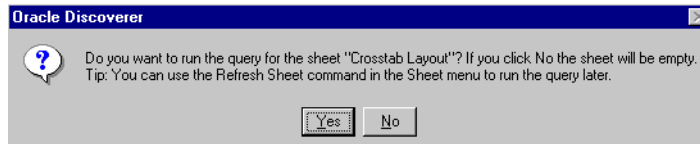
- a. Tab scroll buttons
- b. Click these tabs to switch to another sheet in the workbook. This figure shows the worksheet named Tabular Layout is the current worksheet.

To switch to another worksheet:

1. Click the appropriate tab at the bottom of the workbook window. Use the scroll button if necessary to see additional worksheets. You can also use the key combinations Ctrl Pg Up and Ctrl Pg Dn to cycle through the tabs.

If you've already opened the worksheet, clicking the tab switches to it immediately. If you haven't opened it yet, Discoverer searches the business area to find the data that belongs on the worksheet. Because each worksheet involves a query (search) of the business area, opening a worksheet for the first time takes a few moments while the search is completed. A dialog box reminds you that the search will take place.

**Figure 1–20 Open a Worksheet**



2. Click Yes to open the worksheet.

Discoverer then estimates the time involved for the search and gives you the option to open the worksheet. Click OK to open the worksheet.

If you decide not to open a worksheet and click Cancel, but then later click on the worksheet tab to open it, this dialog box does not appear. Choose **Sheet | Refresh Sheet** to retrieve the data.

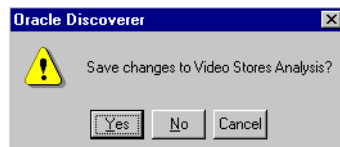
## 1.4 Saving a Workbook

Saving a workbook saves all of its changes. You have two options:

- To save a workbook, choose **File | Save**. The changes are saved and the workbook remains open.
- To close and save a workbook at the same time, choose **File | Close**. If you haven't made changes to any worksheet in the workbook, it closes.

If the workbook contains any unsaved changes on any worksheet, a dialog box reminds you to save the changes.

**Figure 1–21 Save Workbook Reminder**



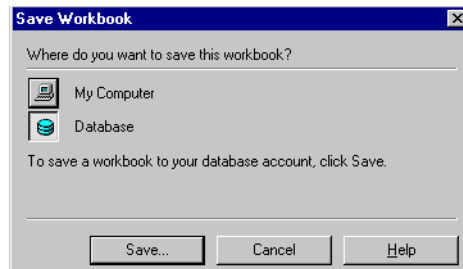
Click Yes to save the changes; click No to close the workbook without saving the changes; click Cancel to keep the workbook open without saving the changes.

To save the workbook under a different name:

1. Choose **File | Save As**.

A dialog box appears for you to specify where you want to save the renamed workbook.

**Figure 1–22 Save Workbook Dialog Box**



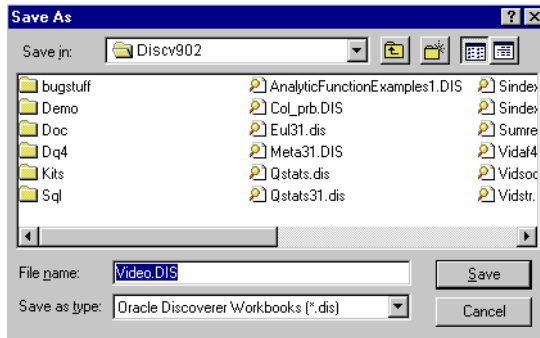
2. Select an option from the Save Workbook dialog box and click Save.

**My Computer**—saves the workbook locally on your computer.

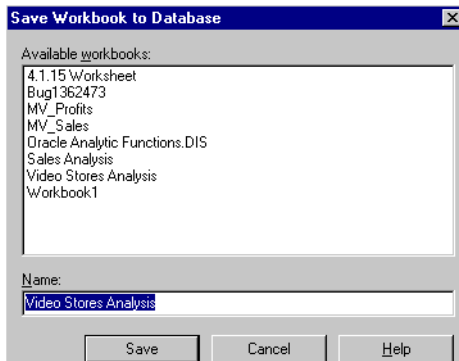
**Database**—saves the workbook with the database.

- If you select My Computer, the Save As dialog box appears (Figure 1–23). Enter a new name and click Save.
- If you select Database, the Save Workbook to Database dialog box appears and lists the workbooks already saved to the database (Figure 1–24). Enter a new name for the workbook and click Save.

**Figure 1–23 Save As Dialog Box**



**Figure 1–24 Save Workbook to Database Dialog Box**



### 1.4.1 Deleting a Workbook

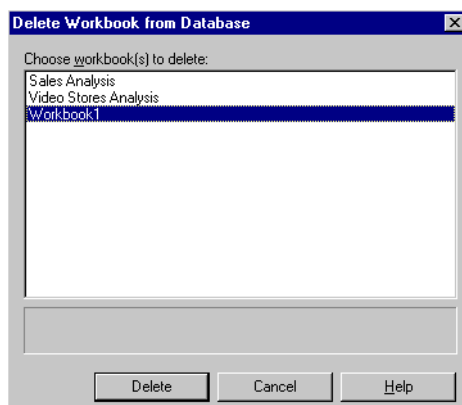
Deleting a workbook from the database permanently removes it. You should *not* delete a workbook from the database unless you are absolutely certain that you won't need it in the future.

To delete a workbook from the database:

1. Choose **File | Manage Workbooks | Delete**.

The Delete Workbook from Database dialog box appears and lists the workbooks currently in the database.

**Figure 1–25** Delete Workbook from Database Dialog Box



2. Click the name of the workbook you want to delete, then click Delete.

#### 1.4.1.1 Deleting a Workbook from Your Computer

If you saved a workbook locally on your computer, deleting it removes it from your computer, but not from the database.

To remove a workbook from your computer, use Windows Explorer or the My Computer icon to remove the workbook as you would any other file.



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## What You See on the Screen

This chapter explains how to use the various items on the screen while you're working with Discoverer Desktop.

The topics include:

- The workbook window
- The four types of display
- Selecting sections of a worksheet
- Seeing the next page of data
- Formatting a worksheet
- Some helpful shortcuts

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**Note:** The examples in this guide use the sample Video database workbook that come with Discoverer. The specific tables, charts, data, and other items you see on your screen depend on the actual data in your database, and the workbook(s) designed by your company's Database Administrator.

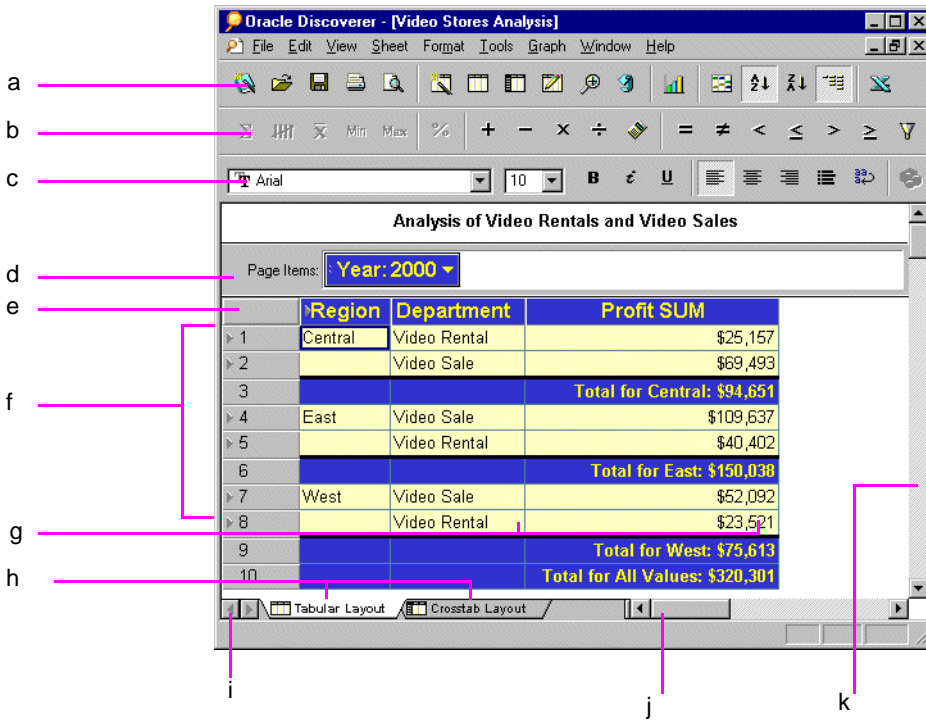
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### 2.1 The Workbook Window

The workbook window is where you will do most of your work with Discoverer Desktop. It shows the data in the workbook.

**Figure 2-1 The Workbook Window**



**Key to Figure 2-1**

- a. Tool Bar
- b. Analysis Bar
- c. Formatting Bar
- d. Page Axis
- e. Top Axis
- f. Left Axis
- g. Data Points
- h. Worksheet Tabs
- i. Tab Scroll Buttons
- j. Page Scroll Bar (Horizontal)



### k. Page Scroll Bar (Vertical)

**Tool Bar**—Buttons help you use Discoverer’s features quickly, for example, opening a new workbook, editing a worksheet, drilling data, or sorting data.

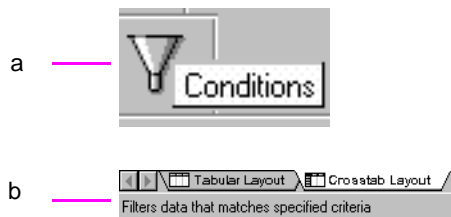
**Analysis Bar**—Buttons help you analyze data quickly, such as adding two sums together or finding the maximum value in a column.

**Formatting Bar**—Buttons format a selected item quickly, such as aligning text in a column or changing the font and background color of a column.

Clicking a button on these bars runs that button’s function. The functions controlled by these buttons are also available from the menus. Note that button availability depends on the type of selected item. For example, if you select a text item, the Average button is not available because it doesn’t make sense to find the average of text.

Also notice that when you put the cursor on a button, it enlarges and displays a small tool tip that tells you what the button is for. Text on the status bar shows a slightly expanded version of the explanation.

**Figure 2-2** *Tool Tips and Status Bar*



#### Key to Figure 2-2

- a. When a pointer is on a button, the button enlarges and displays its tool tip, (Conditions in this example).
- b. The status bar also explains what tools are used for.

**Axis Items**—The page axis, top axis, and left axis on the workbook window represent the data in your database that have a relatively few, discrete values associated with them.

Typical axis items are Sales Regions, Cities, Year, Company Department, Product Name, Salesperson Name, and so on. Sales Region, for example, usually has only a few values associated with it: North, South, Central, West.

Axis items represent data that you can pivot on a crosstab worksheet or that can be column headings on a table. Another way of thinking about axis items is that they are the items that would appear on the axes of a graph. When creating a new worksheet, you identify the data that become axis items.

**Data Points**—The data points of a table or crosstab are the data in the “body” of the worksheet. Data points are the data that you want to use for analysis purposes or to see listed on a table. On a crosstab worksheet, the data is almost always numerical, such as monthly profits or sales amounts by product. Table worksheets, on the other hand, are better for listing text and numeric information. Mailing lists of customers or product part number lists are typical table worksheets.

**Worksheet Tabs**—Click to open or view the various worksheets in the workbook. If you’ve already opened the worksheet, it appears right away. If you haven’t opened the worksheet yet, Discoverer gets it from the business area and then displays it. You can rename these tabs.

**Tab Scroll Buttons**—Click to scroll through the worksheet tabs in the workbook, then click on the tab of the worksheet you want to see.

**Page Scroll Bars**—If the worksheet is larger than the screen, it extends off the edges of the screen. Click the scroll bars to see the rest of the worksheet.

## 2.2 The Four Types of Display

You can display data in four different ways on the workbook window:

- Table and Page-Detail Table
- Crosstab and Page-Detail Crosstab

### 2.2.1 Table Layout

The most familiar layout for data, a *table*, lists data in rows and columns. Typical data for tables includes lists, such as a mailing list of customers sorted by zip code or customer name, lists of income or profit from various departments, lists of products sorted by part number or part name, and so on.

Here is a sample of a table layout on the workbook window. As you can see, it is essentially a listing of data.

**Figure 2–3 Discoverer Table Layout**

	Region	City	Department	Profit SUM
1	Central	St. Louis	Video Sale	\$11,511
2		St. Louis	Video Rental	\$7,627
3		Nashville	Video Sale	\$3,571
4		Nashville	Video Rental	\$3,884
5		Minneapolis	Video Sale	\$6,030
6		Minneapolis	Video Rental	\$3,562
7		Louisville	Video Sale	\$17,103
8		Louisville	Video Rental	\$12,664
9		Dallas	Video Sale	\$4,774
10		Dallas	Video Rental	\$3,547
11		Cincinnati	Video Sale	\$18,742
12		Cincinnati	Video Rental	\$12,587

#### 2.2.1.1 Table Layout with Page Details

A table layout with page details is a table with multiple pages of data, where each page shows various portions of the data in detail. You set the criteria for displaying portions of data in order to see exactly what you want on each page. Usually you use this type of layout to study data details in a specific, recurring way. For example, in the Video Store data you may always want to see monthly profits per region. In that case, each page would show one region's profits each month.

**Figure 2–4 Discoverer Table Layout with Page Items**

Page Items: Year: 1998 ▾				
	Region	City	Department	Profit SUM
▶ 1	Central	St. Louis	Video Sale	\$11,511
▶ 2		St. Louis	Video Rental	\$7,627
▶ 3		Nashville	Video Sale	\$3,571
▶ 4		Nashville	Video Rental	\$3,884
▶ 5		Minneapolis	Video Sale	\$6,030
▶ 6		Minneapolis	Video Rental	\$3,562
▶ 7		Louisville	Video Sale	\$17,103
▶ 8		Louisville	Video Rental	\$12,664
▶ 9		Dallas	Video Sale	\$4,774
▶ 10		Dallas	Video Rental	\$3,547
▶ 11		Cincinnati	Video Sale	\$18,742
▶ 12		Cincinnati	Video Rental	\$12,587
▶ 13		Chicago	Video Sale	\$5,354

## 2.2.2 Crosstab Layout

A *crosstab*, short for “cross-tabulation,” relates two different sets of data and summarizes their interrelationship in terms of a third set of data. For example, a typical crosstab for a chain of retail business stores might show the monthly total sales by products by store. In other words, there are three sets of original data: each store name, product type, and total sales amounts. The store name and product type are axes of the crosstab as rows and columns. Each row and column intersection shows the data points, in this case the total sales for a store and product type.

Every crosstab has at least three dimensions of data—rows, columns, and data points. But in Discoverer, crosstabs can show the interrelationships between many dimensions of data on the various axes. A crosstab layout has three axes: side axis, top axis and page axis. Because each axis can hold several data items, a crosstab can display many dimensions of data.

For example, the following figure is a sample crosstab that shows five dimensions of data: regions and city names, year, department (video rentals and video sales) and the total profit. In this example, the data points (that is, the intersections, or cells on the crosstab) are the sums for total profit. The next page of data would show the same type of data, except for the next department, which is Video Sale.

**Figure 2–5 Crosstab Layout with Page Items**

Page Items: Department: Video Rental ▾			
	> 1998	> 1999	> 2000
	Profit SUM	Profit SUM	Profit SUM
> Central	\$47,204	\$43,813	\$25,157
> East	\$71,766	\$67,249	\$40,402
> West	\$39,395	\$37,777	\$23,521

Key to [Figure 2–5](#)

- Page Axis. In this sample it contains a single data item—Department.
- Top Axis. This top axis contains two data items—Year and Profit.
- Side Axis. This side axis also contains two data items—Region and City.

### 2.2.2.1 Page Detail Crosstab Layout

A page detail crosstab layout is a crosstab with multiple pages of data, so you can group the data on separate pages. You set the criteria for displaying portions of data in order to see exactly what you want on each page, (see [Figure 2–5](#)).

### 2.2.2.2 A Note About Crosstabs

One of the most powerful features of crosstabs is that they can uncover subtleties in the data that are not readily apparent from a table of data or from the raw data itself. By relating one group of data to another, for example, you might find that your best salesperson in terms of volume isn't the best in terms of efficiency (sales calls versus deals closed). Or that the return on investment at one store may be higher in a percentage sense than at another store that posts a higher profit.

**A word of caution**—used incorrectly, crosstabs can show relationships between two sets of numbers when, in fact, there is no meaningful correlation between them at all. For example, it is a well-known observation that the rise and fall of stock prices on the New York Stock Exchange seems to correlate with the length of women's hemlines—miniskirts during booms, maxiskirts during recessions. The correlation seems to exist, but no one knows why. The same can be true with crosstab numbers; a relationship seems to exist but it may not be valid. The point is simply this: As with the women's skirts, you have to know what's being covered before the crosstab relationships make sense.

## 2.3 Selecting Sections of a Worksheet

You can select axis items, columns, rows, and individual cells on a worksheet by clicking on the appropriate elements.

By selecting sections on a worksheet you can assign various features to the sections. For example, to boldface the data in a column, you select any cell that column first.

Selecting on a worksheet is similar to selecting on a spreadsheet. If you are familiar with Microsoft Excel or a similar worksheet application, the steps described in this section will also be familiar.

**Tip:** You can select several portions of a worksheet at a time by holding down the Shift key while clicking (Shift-click).

To select a cell, click the cell. The outline box around the cell indicates it is selected.

**Figure 2–6 Select a Cell**

	Region	City	Department	Profit SUM
> 1	Central	St. Louis	Video Sale	\$11,511
> 2		St. Louis	Video Rental	\$7,627
> 3		Nashville	Video Sale	\$3,571
> 4		Nashville	Video Rental	\$3,884


Key to [Figure 2–6](#)

- a. Click a cell to select it.

To select a row, click the row number or row marker ([Figure 2–8](#)). You can also click the cells at the beginning or the end of the row and drag the pointer across the rest of the cells in the row.

*Highlighting* indicates all the cells in the row are selected. Notice that the first cell is outlined, consistent with selecting on a spreadsheet.

**Figure 2-7 Select a Row on a Table**


a 

	Region	City	Department	Profit SUM
> 1	Central	Chicago	Video Sale	\$5,096
> 2		Cincinnati	Video Sale	\$22,325
> 3		Dallas	Video Sale	\$4,049
> 4		Louisville	Video Sale	\$15,997

Key to figure [Figure 2-7](#)

- a. Click the row number to select the entire row.

**Figure 2-8 Select a Row on a Crosstab**

a 

Page Items: Department: Video Rental				
	1998	1999	2000	
	Profit SUM	Profit SUM	Profit SUM	
> Central	\$47,204	\$43,813	\$25,157	
> East	\$71,766	\$67,249	\$40,402	
> West	\$39,395	\$37,777	\$23,521	

Key to figure [Figure 2-8](#)

- a. Click the row marker to select the entire row on a Crosstab.

To select a column, click the column heading on a table ([Figure 2-9](#)) or the column marker on a crosstab ([Figure 2-10](#)). You can also click on the cells at the top or bottom of the row and drag the pointer down over the rest of the cells in the column.

*Highlighting* indicates all the cells in the column are selected. As in a selected row, the first selected cell on the table or crosstab is outlined instead of highlighted.

**Figure 2–9 Select a Column on a Table**

	Region	City	Department	Profit SUM
1	Central	St. Louis	Video Sale	\$12,270
2		St. Louis	Video Rental	\$4,030
3		Nashville	Video Sale	\$4,616
4		Nashville	Video Rental	\$1,329
5		Minneapolis	Video Sale	\$5,141

Key to figure [Figure 2–9](#)

- a. Click the column heading on a table to select the entire column.

**Figure 2–10 Select a Column on a Crosstab**

Page Items: Department: Video Sale

	Profit SUM		
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

Key to figure [Figure 2–10](#)

- a. Click the column marker to select the entire column.

To select all the cells in the entire worksheet:

- On a table, click the box at the top of the row numbers ([Figure 2–11](#)).
- On a crosstab, click the small box at the top corner of the rows and columns ([Figure 2–12](#)).



**Figure 2–11 Select All the Cells in a Table**


a 

Page Items: Year: 2000 ▾				
	Region	City	Department	Profit SUM
1	Central	St. Louis	Video Sale	\$12,270
2		St. Louis	Video Rental	\$4,030
3		Nashville	Video Sale	\$4,616
4		Nashville	Video Rental	\$1,329
5		Minneapolis	Video Sale	\$5,141
6		Minneapolis	Video Rental	\$1,904

Key to figure [Figure 2–11](#)

- a. Click this box to select all the cells in the table.

**Figure 2–12 Select All the Cells in a Crosstab**

a 

Page Items: Department: Video Sale ▾			
	Profit SUM		
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

Key to figure [Figure 2–12](#)

- a. Click this box to select all the cells in the crosstab.

To select a single axis item, click the axis item. The item is highlighted.

**Figure 2–13 Select a Single Axis Item**

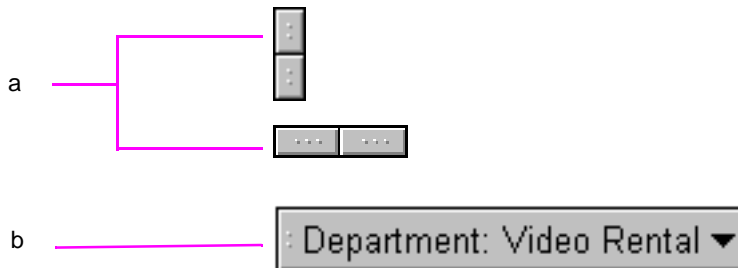
Page Items: Department: Video Sale ▾			
Profit SUM			
	1998	1999	2000 +
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

Key to figure [Figure 2–13](#)

- a. Click an axis item to select it.

To select all the items at one level on an axis, click an axis item marker. These markers are either horizontal or vertical depending on the axis where the item is located. See [Section 2.3.1, "About the Axis Item Markers"](#) for more about item markers.

**Figure 2–14 Axis Item Markers**



Key to figure [Figure 2–14](#)

- a. On the top axis or side axis of a crosstabs the markers are horizontal or vertical.
- b. On the page axis the markers are at the left side of the heading.

**Figure 2–15** *Select All Items at One Level on an Axis*

Page Items: Department: Video Sale		Profit SUM		
		> 1998	> 1999	> 2000
>	Central	\$67,084	\$97,921	\$69,493
>	Chicago	\$5,354	\$10,260	\$5,096
>	Cincinnati	\$18,742	\$28,406	\$22,325
>	Dallas	\$4,774	\$4,319	\$4,049
>	Louisville	\$17,103	\$25,453	\$15,997
>	Minneapolis	\$6,030	\$6,642	\$5,141
>	Nashville	\$3,571	\$5,379	\$4,616
>	St. Louis	\$11,511	\$17,273	\$12,270

Key to figure [Figure 2–15](#)

- a. Click an axis marker to select all the items at that level on the axis. In this sample, clicking this marker selects all the City names on the Left Axis but not the Region names because they are at a different level on the axis.
- b. To select the Region names you would click this marker.

### 2.3.1 About the Axis Item Markers

An axis item marker pertains to one level of data on the axis. For example, Region is at a higher level than Cities (because the Regions contain the Cities). When you click an axis item marker it selects all the items at that level.

Tables and crosstabs can have several axis item markers. Items on the side axis have their axis markers at the top of the axis. Items on the top axis or page axis have their markers to the left of the item. The number of markers on a crosstab indicates how many levels of items in the axes (which is another way of saying how many “dimensions” of data the crosstabs displays).

The axis markers, row markers, column markers, and other similar elements on the screen are only for your work on the screen. Those elements do not appear when you print a table or crosstab report. Use the Print Preview command to see what a table or crosstab will look like when printed.

**Figure 2–16** Axis Item Marker Examples

Page Items: Department: Video Sale ▼

	Profit SUM		
	> 1998	> 1999	> 2000
> Central	\$67,084	\$97,921	\$69,493
> Chicago	\$5,354	\$10,250	\$5,096
> Cincinnati	\$18,742	\$28,406	\$22,325
> Dallas	\$4,774	\$4,319	\$4,049
> Louisville	\$17,103	\$25,453	\$15,997
> Minneapolis	\$6,030	\$6,842	\$5,141
> Nashville	\$3,571	\$5,379	\$4,616
> St. Louis	\$11,511	\$17,273	\$12,270

Key to figure [Figure 2–16](#)

- a. Axis Item Markers.
- b. Note that this side axis has two item markers for the two data items on that axis—Region and City.

## 2.3.2 Selecting Axis Item Markers

When you put the pointer on an axis item, it changes to an arrow, indicating the marker is selected. On a crosstab, a small note shows you the name of the data item for the selected marker. Typically you use an axis marker to pivot data from one axis to another. See [Section 4.1, "Pivoting Data"](#) for details about pivoting.

**Figure 2–17 Pointers on the Axis Item Markers**

a

The figure consists of three screenshots of a crosstab interface. Each screenshot shows a 'Page Items' dropdown menu set to 'Department: Video Sale'. The crosstab has a header row for 'Profit SUM' and three columns for the years 1998, 1999, and 2000. The rows represent different regions: Central, East, and West. The data values are in dollars.

	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

Key to figure [Figure 2–17](#)

- a. A - Depending on the axis item marker's location, the pointer changes to an arrow pointing up, down, or sideways.

## 2.4 Seeing the Next Page of Data

When the page axis contains data, the table or crosstab displays one page of data at a time. A page displays all of the data for a particular data item, such as the profits from Video Rentals for 1996.

To see another page of data on a table or crosstab:

1. Click the down arrow next to the data you want to see.

**Figure 2–18 The Down Arrow on Page Axis Items**

Page Items:		Department: Video Sale		
		Video Rental		
		✓ Video Sale		
		<All>		
		Profit SUM		
		> 1998	> 1999	> 2000
> Central		\$67,084	\$97,921	\$69,493
> East		\$108,558	\$145,462	\$109,637
> West		\$57,096	\$87,172	\$52,092

Key to [Figure 2–18](#)

- a. Click the down arrow to select the next page of data for the particular data item. A drop-down list appears showing the pages available for that data item. A checkmark indicates the current page being displayed on the table or crosstab.
2. Select the page that you want to see next from the drop-down menu.

---



---

Unlike a word-processing document where you scroll to see the next pages, scrolling a table or crosstab shows all the data on the current page. To see the next pages of data, use the process described above.

---



---

In the following figure, the page axis has two data items—Department and Calendar Year. The Calendar Year data covers 1998, 1999, and 2000; the Department data has two departments—Video Sale and Video Rental. Therefore, in combination, the crosstab has a total of six pages of data:

1. 1998 Video Sale
2. 1999 Video Sale
3. 2000 Video Sale
4. 1998 Video Rental
5. 1999 Video Rental
6. 2000 Video Rental

Figure 2–19 See the Next Page of Data

Figure 2–19 consists of three screenshots of a data table, each showing a different navigation step. The table displays Profit SUM for four departments: Central, Chicago, Cincinnati, and Dallas. The data is as follows:

Department	Profit SUM
Central	\$69,493
Chicago	\$5,096
Cincinnati	\$22,325
Dallas	\$4,049

**Screenshot (a):** The 'Page Items' section shows 'Department: Video Sale' and 'Year: 2000'. A pink arrow points to the dropdown arrow next to 'Department: Video Sale'.

**Screenshot (b):** The 'Page Items' section shows 'Department: Video Rental' and 'Video Sale'. A pink arrow points to the dropdown arrow next to 'Department: Video Rental'.

**Screenshot (c):** The 'Page Items' section shows 'Department: Video Sale' and 'Year: 2000'. A pink arrow points to the dropdown arrow next to 'Year: 2000'.

## Key to Figure 2–19

- a. Looking at the page labels, you can see that this crosstab shows data for the Video Sale Department for the Calendar Year 2000. To see data for other Departments, click the down arrow in the Department item.
- b. A drop-down list shows other items available, in this case the Department Video Rentals. The check mark next to Video Sale indicates that the table currently displays the page for Video Sale data. To view data for the Department Video Rentals, select it from the list.
- c. To see data for other Calendar Years, click the down arrow in the Calendar Years item. Then choose a Year from the list. You can now compare Profit revenues for different years.

## 2.5 Formatting a Worksheet

Part of a Database Administrator's responsibility when designing workbooks is to format each worksheet. Text fonts, background colors, column names, and so forth are all part of the default format set up by the Database Administrator. However, you can reformat a worksheet. The following sections describe how to do this.

### 2.5.1 Rearranging the Columns on Tables

On a table you can move columns from left to right. You can also move columns from the body of a table to the page axis. This is known as *pivoting* (see [Section 4.1, "Pivoting Data"](#) for more information).

To move a table column to the left or right:

1. Select the column heading of the column to move.

The pointer changes to a double-headed line indicating you can move the column to the left and right.

2. Drag the column in the direction you want to move it.
3. Release the mouse button when you reach the new position.

**Tip:** To make the selected column the first or last one in the table, drag the pointer to the leftmost or rightmost column. See [Figure 2-20](#) for an example.



**Figure 2–20 Move a Column Left or Right on a Table**

a

Page Items: Year: 2000 ▾				
	▸ Region	City	Departmer	Profit SUM
▸ 1	Central	St. Louis	Video Sale	\$12,270
▸ 2		St. Louis	Video Rental	\$4,030
▸ 3		Nashville	Video Sale	\$4,616
▸ 4		Nashville	Video Rental	\$1,329
▸ 5		Minneapolis	Video Sale	\$5,141
▸ 6		Minneapolis	Video Rental	\$1,904

b

Page Items: Year: 2000 ▾				
	▸ City	▸ Region	Departmer	Profit SUM
▸ 1	St. Louis	Central	Video Sale	\$12,270
▸ 2	St. Louis		Video Rental	\$4,030
▸ 3	Nashville		Video Sale	\$4,616
▸ 4	Nashville		Video Rental	\$1,329
▸ 5	Minneapolis		Video Sale	\$5,141
▸ 6	Minneapolis		Video Rental	\$1,904

**Key to Figure 2–20**

- a. Select a column and move the cursor to the right.
- b. When mouse button is released, the column moves to the right.

## 2.5.2 Resizing Columns

You can enlarge or reduce the size of each column by dragging the column's right-hand edge to the right or left.

Dragging the column edges is relatively imprecise, but is quick and usually sufficient for working on the screen. If you want to resize columns precisely (for example, for printing purposes or to create a report), use the **Format** menu.

To resize a column by dragging its edge:

1. Put the pointer on the right-hand edge of the column header. The pointer changes to a resize pointer.
2. Hold down the mouse button and drag to the right or left.

**Figure 2–21** *Resize a Column*

Figure 2-21 consists of two screenshots, labeled 'a' and 'b', showing a table with columns: Department, Region, City, and Profit SUM. The table is filtered for the year 2000. In screenshot 'a', the 'Department' column is being resized from its original width to a wider width. In screenshot 'b', the 'Department' column has been resized to its full width, displaying the complete names of departments like 'Video Sale' and 'Video Rental'.

	Department	Region	City	Profit SUM
1	Video Sale	Central	St. Louis	\$12,270
2	Video Rental		St. Louis	\$4,030
3	Video Sale		Nashville	\$4,616
4	Video Rental		Nashville	\$1,329

### Key to Figure 2–21

- a. Drag the resize pointer to the left or right to change the width column width.
- b. The Department column has been resized to display the whole Department names.



When decreasing the size of a column that contains text data, click the **Text Wrap** button. This ensures that text too long to fit on one line in the new column width, will be displayed with multiple lines so all text remains visible. See [Section 2.5.3.2](#),

"[Reformatting a Column Heading on a Table](#)" for the steps to make a column wrap its text.

**Note:** Text in the column heading does not wrap, even if Text Wrap button is clicked.

To resize columns with the Format menu:

1. Select the column(s) to resize.
2. Choose **Format | Columns | Width**.

The Column Width dialog box appears.

**Figure 2–22** Column Width dialog box



3. Enter a number for the width of the column. The number sets the width of the column in characters.

**Tip:** You can also resize selected columns using the **Format | Columns | Auto Size** command. The columns automatically resize to fit their data and column headings. Double-clicking on the right edge of a column header also auto-sizes the column.

## 2.5.3 Formatting Headings, Data, and Titles

You can edit the format and text of column headings and page items.

The steps to reformat column headings are slightly different for tables and crosstabs as explained in the following sections.

### 2.5.3.1 Editing Column Header Text

You use the Item Properties dialog box to edit the text of column headings.

To edit column header text:

1. Select the column header, page item, or item handle.
2. Choose **Edit | Item Properties**.

To use the right mouse button pop up menu, double-click on a column header or click on the column header, page item, or item handle in a crosstab. Then choose Item Properties from the menu.

The Item Properties dialog box appears.

3. Enter a new heading and click OK.

### 2.5.3.2 Reformatting a Column Heading on a Table

To reformat column headings on a table:

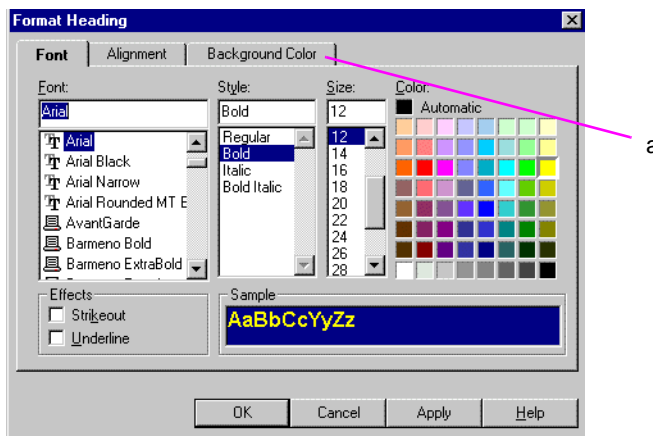
1. Select the column heading. To change the formats of several columns at the same time, Shift-click or Ctrl-click to select them.

**Note:** Do *not* use the tools on the formatting bar to format column headings on tables. Selecting a column heading and clicking a button on the formatting bar is how you reformat the data in the table.

2. Choose **Format | Headings**.

The Format Heading dialog box appears.

**Figure 2–23** *Format Heading Dialog Box*



Key to [Figure 2–23](#)

- a. Click these tabs to display the various formatting options.

3. Click the tabs across the top of the dialog box and select the options for reformatting the heading(s).

---

---

The tabs you see in this dialog box may differ, depending on the type of data in the column. For example, a column for text will have a tab named **Text**, while a column for dates will have a tab named **Date** so you can select specific formatting for the specific data type.

---

---

**Font**—Select the font, style, size, and color for the column heading text. In the example above, the text is Arial, Bold, 11 point and yellow. Click a color on the color palette to set the text to that color.

**Alignment**—Select the options to align the text in the column heading in both the horizontal and vertical directions. The example above shows text that is both left and top aligned. The horizontal alignment option **Wrap Text** means a column heading automatically extends to the next line, in case the text is too long to fit on a single line.

**Background Color**—Click a color for the column heading background. Usually you'll want contrasting colors such as yellow text on a blue background.

4. Click Apply to apply the new formats so you can see how they look.
5. Click OK when you're finished.

### 2.5.3.3 Reformatting a Column Heading on a Crosstab

When formatting a column heading on a crosstab, all of the headings at the same level will also be reformatted because a column heading represents the same data. For example, Year:1995 and Year:1996 both represent the data item, Year. You cannot reformat a single column heading on a crosstab if there are other columns at the same level.

To reformat a column heading on a crosstab:

1. Select a column heading. All column headings at that level receive the formatting.
2. Choose **Format | Headings** and now format the headings the same way you do for a table (see [Section 2.5.3.2](#)).

**Note:** Unlike tables, you can use the formatting buttons on the formatting bar to reformat column heading on crosstabs. For example, to change the format of the Year columns on the sample crosstab, select either Year column, click a formatting button, and the both columns are reformatted. [Figure 2-1](#) shows the formatting bar.

#### 2.5.3.4 Reformatting Data

When reformatting data in a table or crosstab, you can use the workbook menu or the formatting buttons on the formatting bar. [Figure 2-1](#) shows the formatting bar.

To reformat data in a table:

1. Select a column heading to reformat the data in that column. You can also Shift-click to reformat the data in multiple columns.

To reformat all of the data in a table at the same time, select the entire table or any row in the table. Page items will not be formatted unless you select them.

2. Choose **Format | Data** and select options from the Format Data dialog box.

To reformat data in a crosstab:

1. Select a column heading or any cell in the column. You can also Shift-click to reformat the data in multiple columns.

To reformat all of the data in a crosstab at the same time, select the entire crosstab. Page items will not be formatted unless you select them.

2. Choose **Format | Data** and select options from the Format Data dialog box.

As you select the table or crosstab formatting options, a sample shows the format, including number of decimal places. Click **Apply** to apply the new formatting, and click OK when you're finished.

#### 2.5.3.5 Adding Bars to Numeric Data

You can add graphic bars to numeric data in tables or crosstabs to provide a quick visual comparison of the relative amounts displayed. Here is an example:

**Figure 2–24 Graphic Bars Added to Numeric Data**

	Department	Region	City	Profit SUM
1	Video Sale	Central	St. Louis	12269.82
2	Video Rental		St. Louis	4029.91
3	Video Sale		Nashville	4615.76
4	Video Rental		Nashville	1329.08

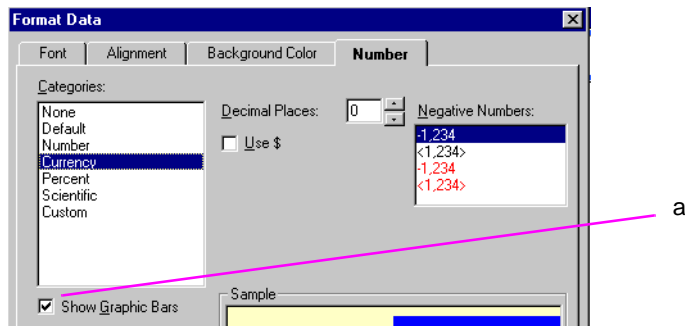
Key to [Figure 2–24](#)

- a. The graphic bars added to the Profit SUM column show the amount visually as a colored bar. The larger the amount, the larger the graphic bar.

To add graphic bars to numbers:

1. Select a column heading with numeric data, or any cell in the column.
2. Choose **Format | Data**.
3. Click the Number tab on the Format Data dialog box.
4. Click the checkbox labelled **Show Graphic Bars**.

**Figure 2–25 Show Graphic Bars**



Key to [Figure 2–25](#)

- a. Select the **Show Graphics Bars** check box.
5. Click OK. The graphic bars are added to the table or crosstab.

## 2.5.4 Formatting a Worksheet Title

The worksheet title is at the top of the worksheet:

**Figure 2–26 Worksheet Title**

The screenshot shows a worksheet titled "Analysis of Video Rentals and Video Sales". Below the title is a "Page Items" section with a dropdown menu set to "Year: 2000". Below that is a table with the following data:

	Department	Region	City	Profit SUM
▶ 1	Video Sale	Central	St. Louis	12269.62
▶ 2	Video Rental		St. Louis	4029.91
▶ 3	Video Sale		Nashville	4615.76

Key to [Figure 2–26](#)

- a. Worksheet Title.

You can edit all aspects of the title, including the name, text, color, style, and so on.

A special editing feature lets you insert text codes that automatically add certain types of data to the title. These text codes are particularly helpful when printing a worksheet. For more information, see [Section 2.5.4.1, "Adding Text Variables to Titles"](#).

Discoverer also has a special function so you can put a bitmap image in the title. For example, your company logo as the background for the worksheet title is useful when printing copies of worksheets for external distribution. For more information, see [Section 2.5.4.2, "Adding Bitmaps to Titles"](#).

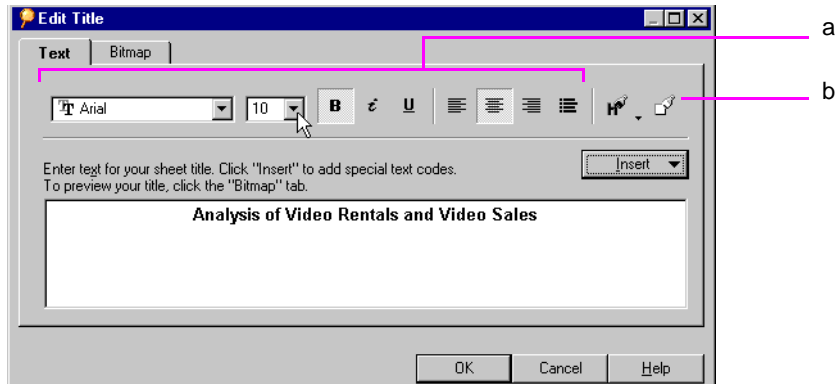
To reformat a worksheet title:

1. Choose **Sheet | Edit Title**.

The Edit Title dialog box appears:



**Figure 2–27** *Edit Title Dialog Box*



Key to [Figure 2–27](#)

- a. Text style and alignment options.
- b. Text color and background color icons.

2. Select the text options such as the font, size, and alignment to format the title.
3. Click the icons at the right side of the dialog box to change the color of the text or background.

**Note:** As you select options, the sample in the dialog box changes to show the effects of your choices.

4. Click OK when the formatting is complete.

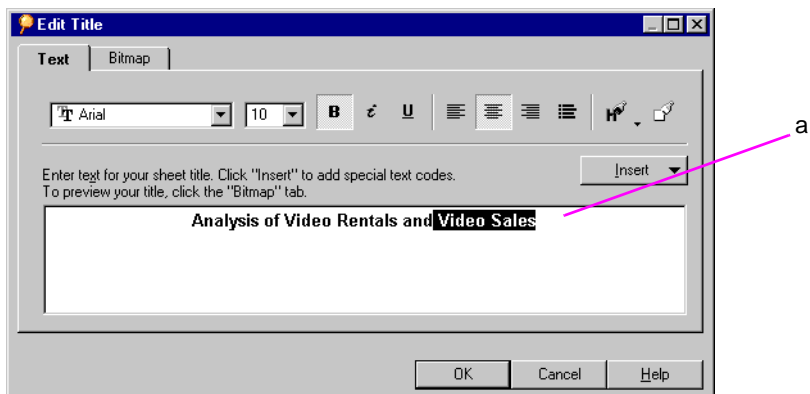
You can also edit formats of a title by choosing **Format | Sheet | Title** and selecting options from the Format Title dialog box. Those options are the same as shown in [Figure 2–23](#).

To edit the worksheet title:

1. Click in the title where you want to add text, or select a portion of the title to change it.

Figure 2–28 shows a section of text that has been selected:

**Figure 2–28** Enter Title Text



Key to [Figure 2–28](#)

- a. Selected text.

2. Type the new text.

#### 2.5.4.1 Adding Text Variables to Titles

Text Codes contain Workbook information such as the current date and time, the name of the workbook where the worksheet is located, or the number of pages. Once inserted, they are automatically updated when Workbook details change.

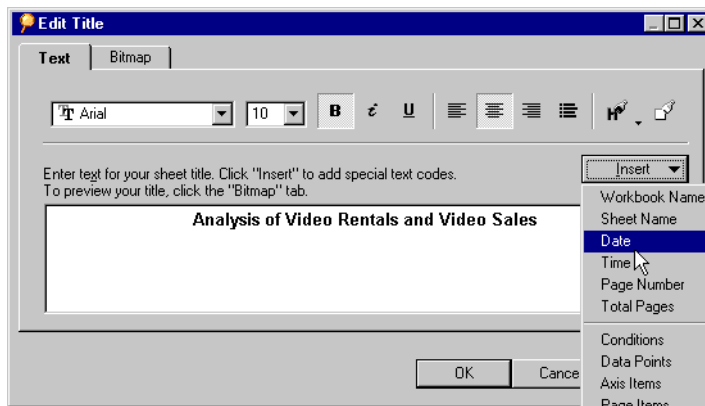
To add text code to the title of the worksheet:

1. Click in the title where you want to add a text variable.

To add it on the next line under the title, put the pointer at the end of the title and press Return.

2. Click the Insert button.

The **Insert** menu shows the text codes that you can insert in the title:

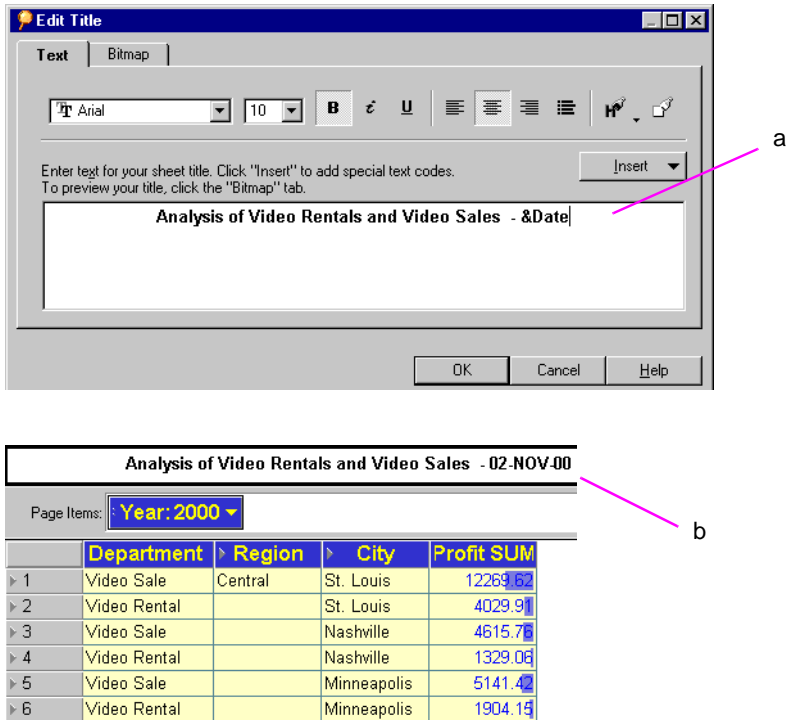
**Figure 2–29** Edit Title Insert Menu

3. Select the text code from the menu.

The code is added at the pointer location in the title. Note that the text code begins with an ampersand (&); the *ampersand* is a programming character and does not appear in the title.

Figure 2–30 shows a text code example.

**Figure 2–30 Text Code Example**



**Key to Figure 2–30**

- a. This example shows the date code inserted at the end of the title.
- b. Here is the Worksheet title with the current date added to the end of the title.

### 2.5.4.2 Adding Bitmaps to Titles

A bitmap image can be the background of a worksheet title. For example, you can insert a bitmap of your company logo.

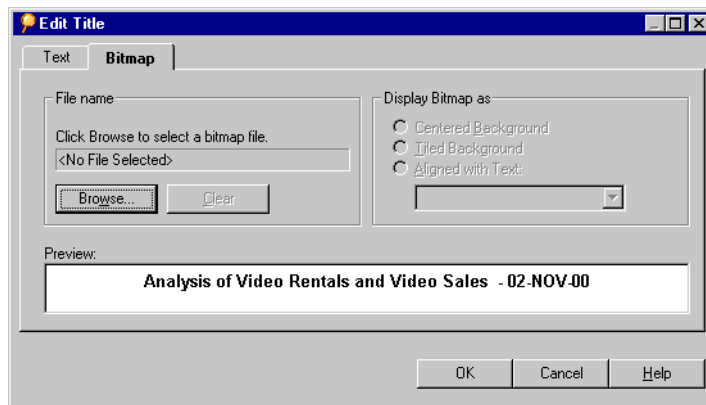
To add a bitmap to the title:

1. Choose **Sheet | Edit Title**.

The Edit Title dialog box appears:

2. Click the Bitmap tab on the Edit Title dialog box.

**Figure 2–31** *Bitmap Page for Edit Title Dialog Box*



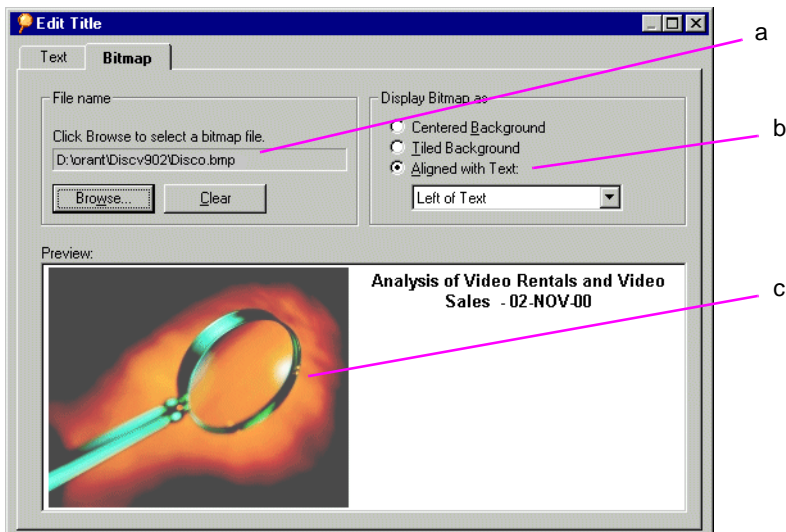
3. Click the Browse button.

An Open dialog box appears.

4. Find the bitmap file that you want to use and click Open.

The bitmap appears with the title. For example, in [Figure 2–32](#), the file 'Disco.bmp' has been defined as the bitmap graphic.

**Figure 2–32** Bitmap Page with a bitmap graphic (*Disco.bmp*) file defined



**Key to Figure 2–32**

- a. The bitmap file location and filename.
  - b. Bitmap alignment options.
  - c. The graphics file **Disco.bmp** displayed as part of the Worksheet title.
5. Select an option for displaying the bitmap with the title as Centered, Tiled or Aligned with the text.  
For a bitmap aligned with the text, choose an alignment option from the drop-down menu.
  6. When the bitmap is properly displayed in the title, click OK. The bitmap is added to the title on the worksheet.

**Tip:** To remove the bitmap and start over, click Clear.

---



---

NOTE: Bitmaps are saved in the database along with the Workbook. If Discoverer cannot find the original bitmap file, it uses the bitmap stored in the database.

---



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## 2.5.5 Renaming a Worksheet

A worksheet's name appears in the worksheet tabs at the lower left of the Workbook windows. See [Figure 2-1, "The Workbook Window"](#) as an example.

To rename a worksheet:

1. Choose **Sheet | Rename Sheet**.

The Rename Sheet dialog box appears and shows the sheet's current name.

---

---

NOTE: You can also double-click on a Worksheet's name tab to display the Rename Sheet dialog.

---

---

2. Type a new name for the sheet and click OK.

## 2.6 Some Helpful Shortcuts

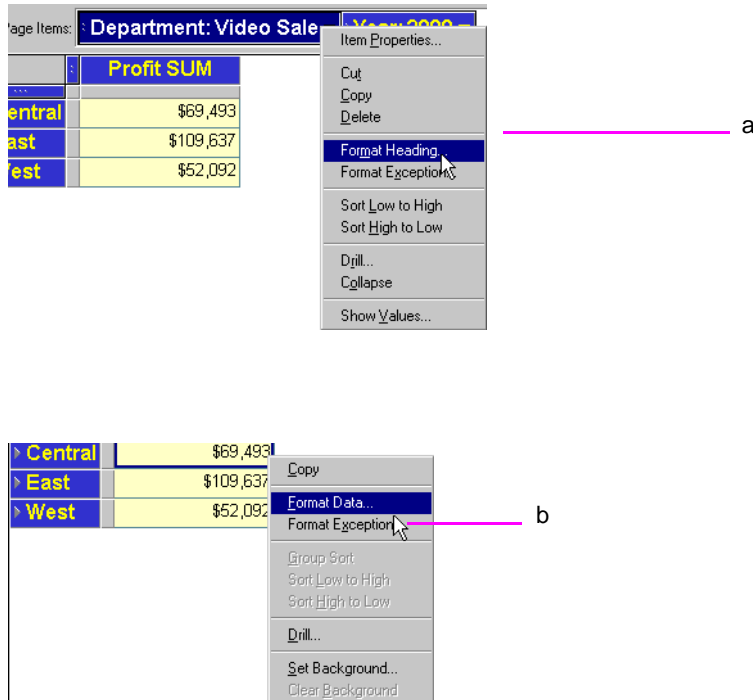
In addition to the tool bars and other buttons on the window, Discoverer has built-in shortcuts to help you work more efficiently.

### 2.6.1 Right Mouse Support

Clicking the right mouse button when the pointer is on various features of the window produces a pop-up menu with context-sensitive commands specific to that feature. This shortcut helps you choose commands quickly without having to use the menus.

Figure 2–33 shows samples of right-click menus. There are many others for the other features.

**Figure 2–33** Sample Right-Click Menus





Key to [Figure 2-33](#)

- a. Right-click menu for the **Department** page item.
- b. Right-click menu for a **Profit SUM** cell item.

## 2.6.2 Resizing Windows

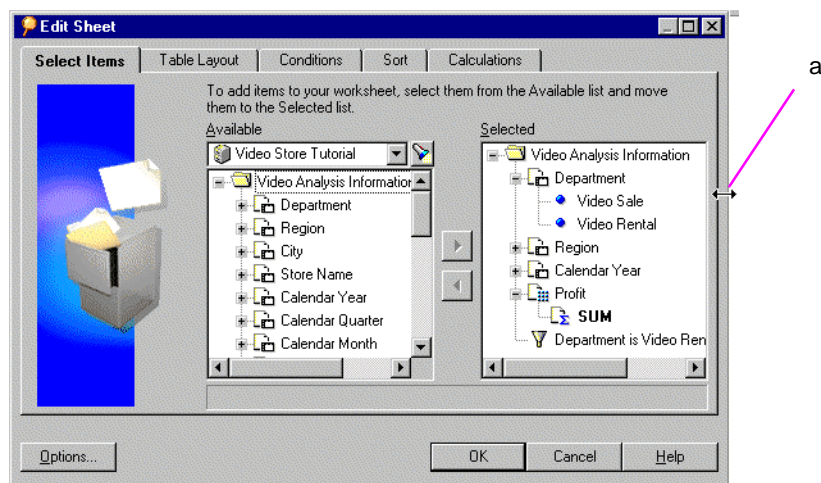
Many of Discoverer's windows can be resized horizontally or vertically. You may find a more appropriate size better for your particular computer monitor.

To resize a window:

1. Put the pointer on an edge of the window.

The pointer becomes a horizontal or vertical arrow. In [Figure 2-34](#) below, the pointer is horizontal arrow, used to change the width of the dialog box.

**Figure 2-34** Window Resize Arrow



Key to [Figure 2-34](#)

- a. Horizontal resize arrow at the edge of the dialog box.
2. Drag the pointer to adjust the width of the dialog box.

When the pointer is on the side edge, drag it to the left or right. When the pointer is on the top or bottom edge, drag it up or down.

The window will be the selected size from now on.

---

---

## Presenting Data on a Graph

Discoverer Desktop can convert tables and crosstabs to graphs or charts so you can analyze and present data graphically. Graphs and charts of tables and crosstabs are especially effective for presentations of results.

This chapter explains how display data on a graph.

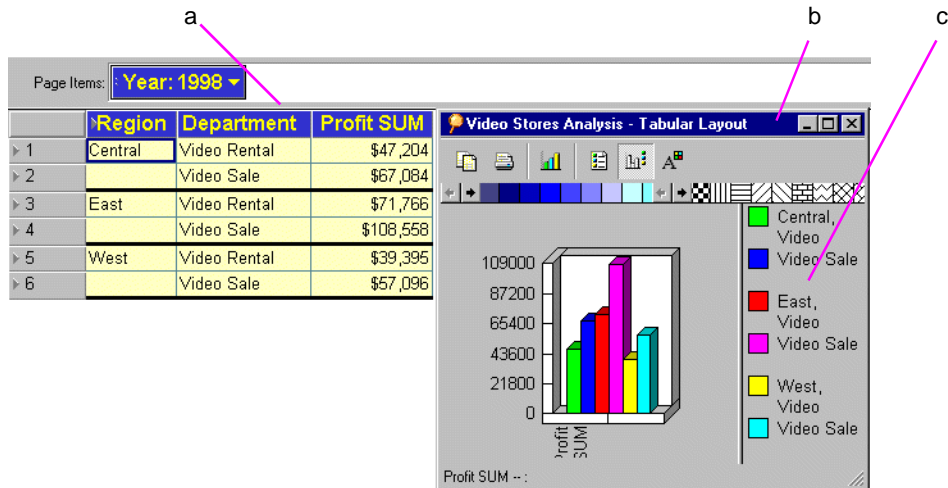
The topics include:

- The features of a graph
- Creating graphs
- Modifying a graph

## 3.1 The Features of a Graph

The following figure shows a table and its resulting graph. This sample shows a bar graph, but several other styles are also available.


**Figure 3-1 A Worksheet table and Its Graph**



### Key to Figure 3-1

- A Worksheet in table format
- A graph of the data in the Worksheet. Each bar corresponds to one row on the table. In this example, each bar represents the Profit SUM for a Region for the Calendar Year 1998.
- Graph legend. Each bar is represented in a different color.

To display Worksheet data as a graph:

- Display the worksheet that you want to see as a graph.
- Choose **Graph | Show** or click the Graph button  on the worksheet tool bar.

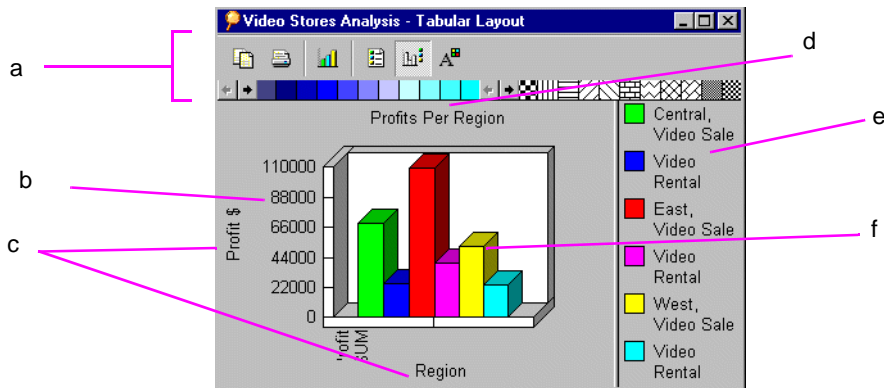
The first time you display a graph, the Graph Wizard walks you through the process of defining the graph's features. Then, a graphical representation of the worksheet appears in the Graph window.

- When you are finished working with the graph, click the Close button on Graph window. You can also click the Minimize button on the Graph window.

The graph retains its design features when closed. The next time you open it, the graph has the same appearance.

Figure 3-2 shows the features on a typical graph.

**Figure 3-2** Graph Window



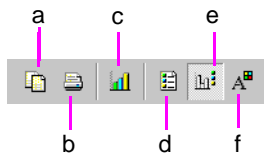
### Key to Figure 3-2

- Tool Bar**—click a tool to work with the graph; click a color or pattern and drag it onto the graph to change the data's color or pattern; click the arrows to scroll the colors and patterns.
- Y-Axis Scale**—shows the scale appropriate for the data in the original table or crosstab; you can reset the scale and add decimal points.
- Titles**—additional labels that you can add to the graph. Four positions for the titles are Top, Left, Right, and Bottom.
- Top title.**
- Legend**—the color and label for data
- Data** - the graphical representation of the data (in the figure, 3D bars).

### 3.1.1 The Graph Tool Bar

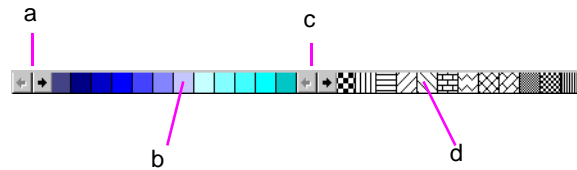
To work with the graph, use the **Graph** menu on the worksheet window or the Graph tool bar on the Graph window. To show or hide the Graph tool bar, choose **Graph | Toolbar**. The following figure identifies the icons on the Graph tool bar.

*Figure 3–3 The Graph Tool Bar*



**Key to Figure 3–3.**

- a. **Copy Graph to Clipboard**—copies the current graph to the Windows Clipboard.
- b. **Print**—prints the graph to your computer's printer using the default settings for that printer. If the graph is too large for a single page, prints additional pages as necessary. You can also choose **Graph | Print** to print the current page with Discoverer's print settings.
- c. **New Graph Type**—displays a drop-down list for choosing a new type of graph.
- d. **Show/Hide Labels**—shows/hides a list of labels that correspond to the row numbers along the graph's x-axis. You can also choose **Graph | X Labels**.
- e. **Show/Hide Legend**—shows/hides the graphs legend. You can also choose **Graph | Legend**.
- f. **Modify Graph**—displays a dialog box for editing and formatting a graph; the options in the dialog box are the same ones offered in the Graph Wizard. You can also choose **Graph | Edit Graph**.

**Figure 3–4 Graph Colors and Patterns****Key to Figure 3–4**

- a. Scroll to see additional colors
- b. To change colors, click a color and drag it onto a portion of the graph.
- c. Scroll to see additional patterns
- d. To change patterns, click a pattern and drag it onto a portion of the graph.

**Note:** You can also show or hide the status bar in the Graph window. Choose **Graph | Status Bar**.

## 3.2 Creating a Graph

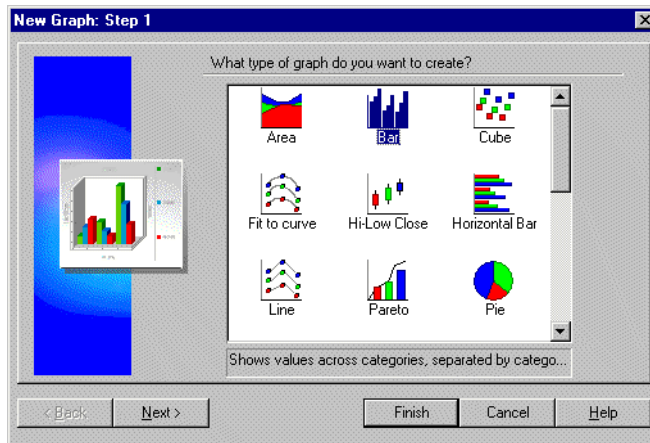
The Graph Wizard walks you through the process of creating a graph. These dialog boxes only appear the first time you create a graph of a table or crosstab. To make any changes to a graph later, use the Modify Graph button on the Graph tool bar.

To create the initial graph with the Graph Wizard:

1. Display the worksheet that you want to see as a graph.
2. Choose **Graph | New Graph** or click the Graph button on the worksheet tool bar.

The first Graph Wizard dialog box appears:

**Figure 3–5 New Graph: Step 1**

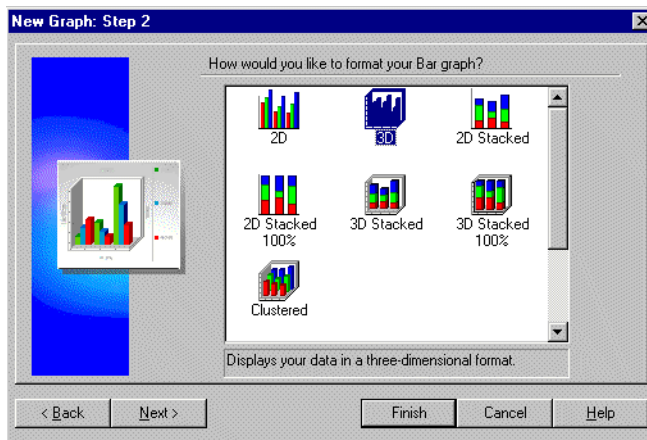


3. Select one of the graph types. Scroll to see additional choices.

To expand the text description at the bottom of the box, put the pointer on the text.

4. Click Next.

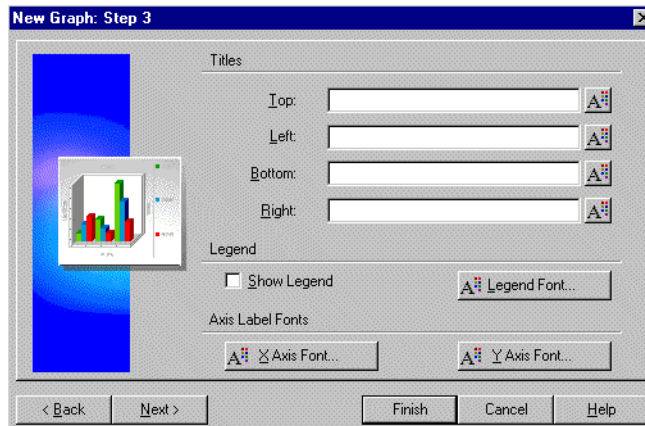
**Figure 3–6 New Graph: Step 2**





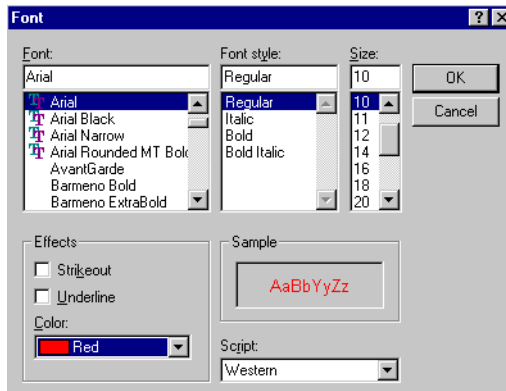
5. Select one of the graph formats. Scroll to see additional choices.
6. Click Next.

**Figure 3–7** *New Graph: Step 3*



- To add titles to the graph, enter them in the appropriate boxes. See [Figure 3–2](#) to see the locations of the titles.
- To add a legend to the graph, click Show Legend.
- To format the axes labels, click the formatting button next to each feature to see the Font dialog box for that element.

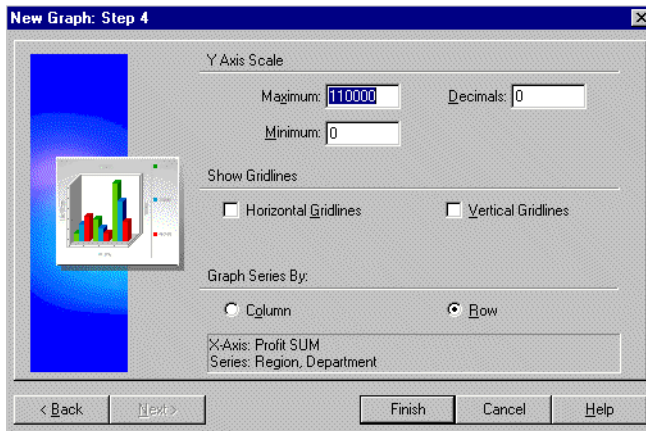
**Figure 3–8 Font Dialog Box**



Select the font choices and click OK. Repeat for the other design elements that you want to format individually.

7. Click Next on the New Graph wizard dialog box.

**Figure 3–9 New Graph: Step 4**



8. Select options for the data on the graph:

**Y-Axis Scale**—enter numbers in the Minimum and Maximum boxes to set the upper and lower boundaries of the y-axis; usually the Minimum value is zero. The Maximum value is normally a value higher than the maximum data point value.

**Decimals**—enter a number for the number of decimal places on the y-axis scale; enter 2, for example, to display the scale numbers as 100.00.

**Show Gridlines**—click each option to show gridlines on the background of the graph.

**Graph Series By**—select one or the other option:

- **Column**—plots the rows on the x-axis and the data for each row in the graph.
- **Row**—plots the columns on the x-axis and the data for each row in the graph.

9. Click Finish. The Graph window appears with the new graph in it.

### 3.2.1 Updating the Data on a Graph

*You do not have to update a graph manually.* As you analyze data on tables and crosstabs, additional data displayed as part of the analysis is automatically added to the graph and appears the next time you display the graph.

For example, if you display a column of percentages for the data, that column's data becomes data points on the graph. Likewise if you pivot a column to the page axis, the graph is automatically updated to reflect that change.

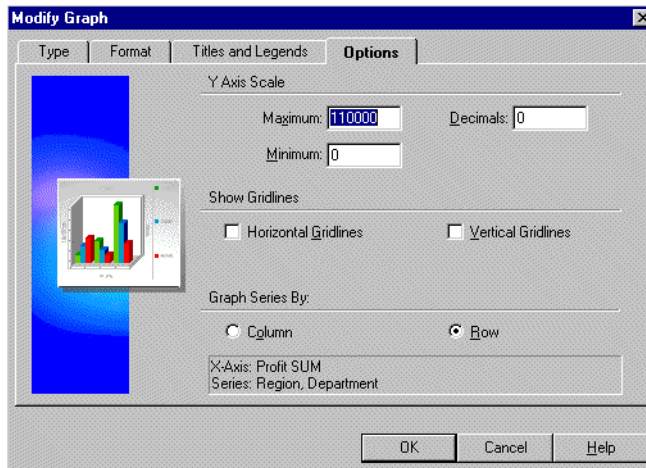
### 3.3 Modifying a Graph

To modify a graph:



1. Click the **Modify Graph** tool on the Graph window's tool bar or choose **Graph | Edit Graph**.
  - If you choose **Graph | Edit Graph**, the first Graph Wizard dialog box for modifying the graph appears. It has the same options as the original Graph Wizard dialog box. You can then step through the dialog boxes modifying the graph in the same manner that you created the original graph.
  - If you click the **Modify Graph** tool, a dialog box appears for modifying the graph.

*Figure 3–10 Modify Graph Dialog Box*



The tabs across the top of the dialog box offer the same features as the Graph Wizard dialog boxes that you initially used to create the graph.

Here the Options tab is selected. Compare the options shown in the figure above with Figure 3–9 on page 3-8. You can see that the two provide the same options.

2. Use the **Type**, **Format**, **Titles and Legends**, and **Options** tabs to change the graph details as required.
3. Click OK.

In addition to modifying the y-axis scale with the Modify Graph dialog box shown above, you can also choose **Graph | Scale**. The dialog box that appears includes additional options to set the y-axis scale units, plot the scale linearly or logarithmically, and to set the size of the gap between plotted data points.

### 3.3.1 Selecting a New Graph Type

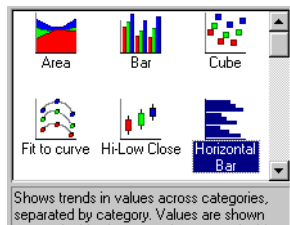
To select a new graph type:



1. In the Graph window, click the **New Graph Type** button on the Graph window tool bar.

The dialog box for a new graph type appears.

**Figure 3–11** *New Graph Type Drop-Down List*

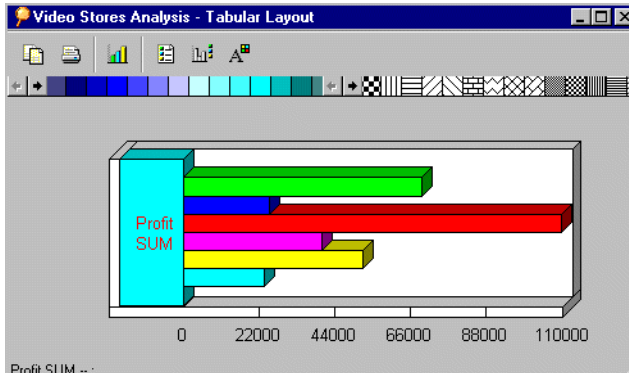


2. Click the new graph type. The graph changes to its new type.

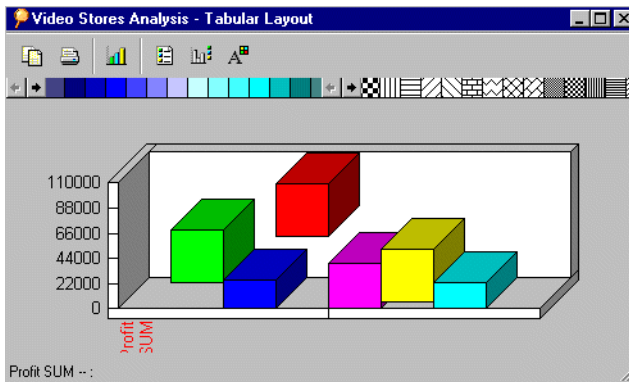
If you do not want to change the graph's current type, click on the Graph window (off the drop-down list) and the list closes.

Here are samples of two types of graph that plot the same data.

**Figure 3–12 A Horizontal Bar Graph**





**Figure 3–13 A Cube Chart**



### 3.3.2 Displaying the Graph Legend and X Labels

You can show or hide the legend and X labels by clicking the buttons on the tool bar.

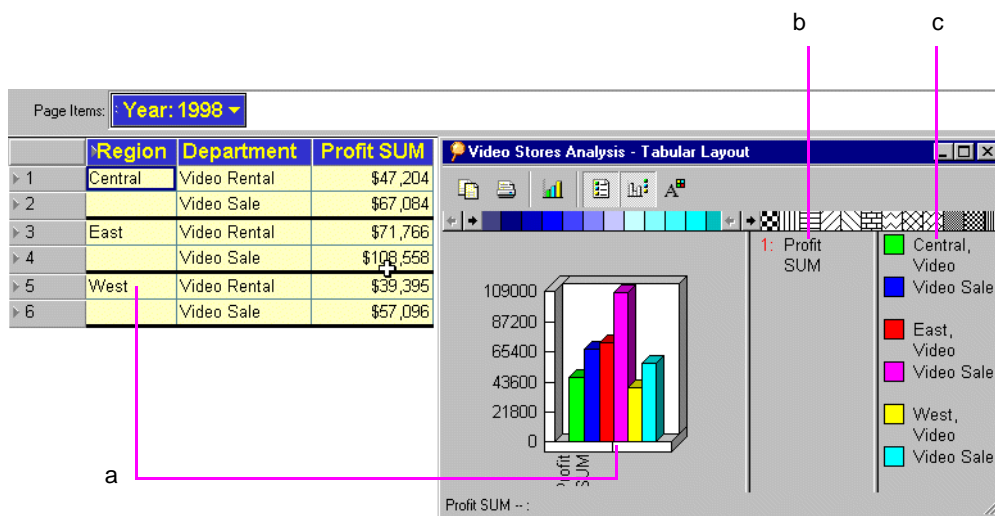
To display the legend and X labels:

1. Click the Show/Hide Legend  and Show/Hide Labels buttons  on the Graph window tool bar. You can also choose **Graph | Legend and Graph | X Labels**.

**Note:** These buttons and commands are toggles—that is, click a button to show the data; click it again to hide the data.

Here is a sample graph showing both the legend and X labels from the rows on the original table or crosstab.

**Figure 3–14** Graph Showing Legend and X Labels



### Key to Figure 3–14

- Each row in the table is represented on the Bar Graph as a bar.
- The X labels.
- The legend corresponds to the rows in the table.

### 3.3.3 Resizing the Window and Graph

You may need to resize the graph or its window depending on the type of graph and the amount of plotted data. You can resize most portions of the window and graph.

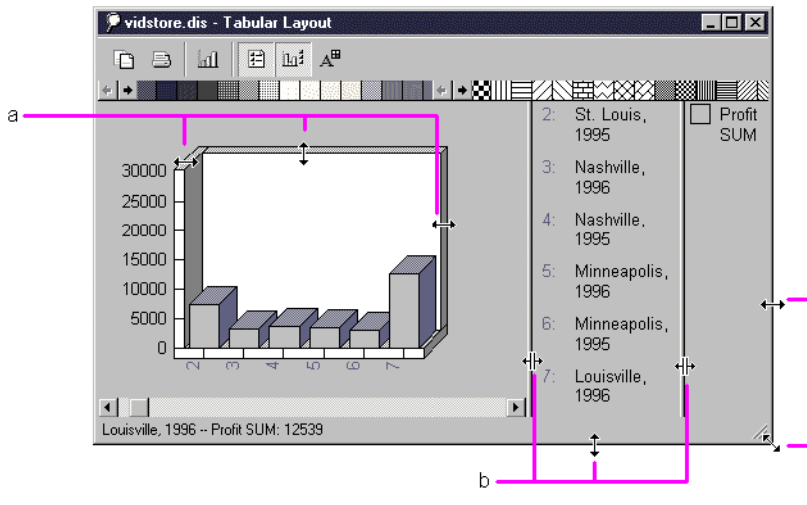
To select the window or graph so you can resize it:

- Put the pointer on the edge of the window, edge of the graph, or on one of the other resizable sections of the graph. The pointer changes to a resize arrow.

2. Drag the mouse pointer to resize the window or graph.

The following figure shows some of the places you can drag the pointer to resize.

**Figure 3–15 Resizable Sections**



**Key to Figure 3–15**

- a. Drag the edge of the graph itself to enlarge it vertically and horizontally.
- b. Drag these lines from side to side or up and down to enlarge the columns so that text can fit.
- c. When the pointer is on the edge of the window, drag the edge to resize the window. The other edges are also resizable.

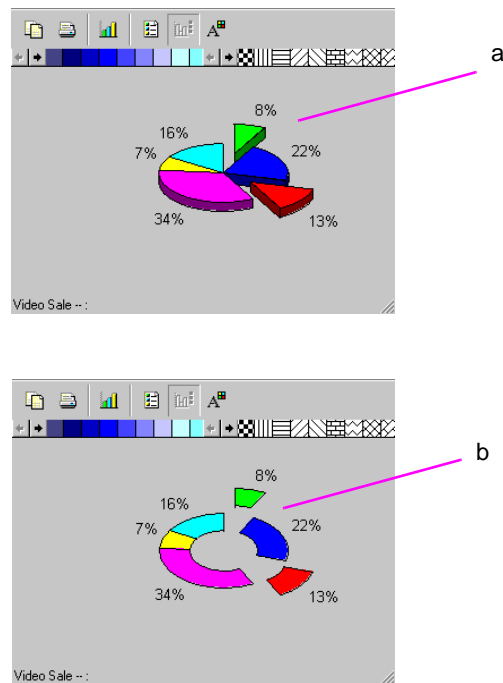
### 3.3.4 Reference Lines and Pull-outs on a Graph

On most of the graph types, dragging on the graph produces a set of *reference lines* that you can use to visually correlate the graph's data points with the vertical and horizontal scales. On the pie graph and donut graph types, however, dragging pulls sections of the graph out so you can call special attention to them.



Here are some examples:

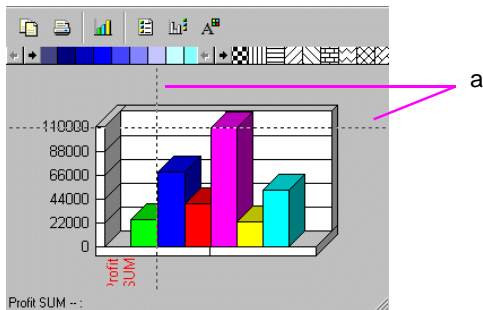
**Figure 3–16** Sample Pull-Outs on a Pie Graph and Donut Graph



**Key to Figure 3–16**

- a. You can point at sections of a Pie Chart and drag out sections for emphasis. To replace a section of the Pie Chart, drag it back to its original position.
- b. If you change the graph type to a Donut Graph, any pulled out sections remain emphasized. To replace a section of the Donut Graph, drag it back to its original position.

**Figure 3–17** Sample Reference Lines on a Bar Graph



**Key to Figure 3–17**

- a. Drag the cursor over a graph to display reference lines. Reference lines allow you to see how points on the graph relate to the vertical and horizontal axes.

### 3.3.5 Rotating Graphs

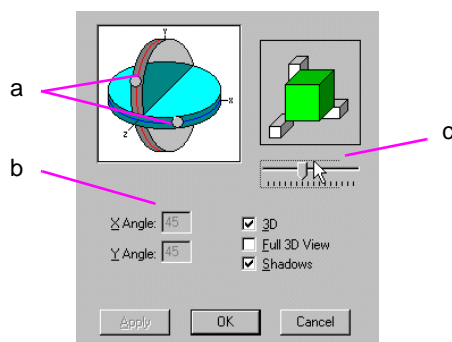
You can rotate 3D graphs to view them from a different perspective.

To rotate a graph:

1. Choose **Graph | 3D View**.

A dialog box for rotating the graph appears.

**Figure 3–18 3D View Properties Dialog Box**



**Key to Figure 3–18**

- a. Drag these dots around the edge of the sphere rotates the graph in the corresponding x and y direction.
- b. These numbers show the amount of rotation in each axis.
- c. Drag this slider to rotate the graph in the z-axis plane.

**Tip:** Before you begin to rotate a graph, write down the X Angle and Y Angle numbers and note the position of the slider so you can return the graph to its unrotated position after experimenting with rotation.

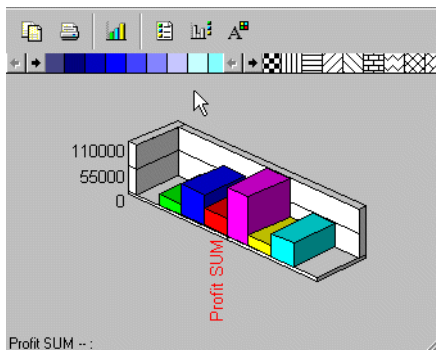
2. Select the options for displaying the graph:
  - **3D**—displays the graph with both the X Angle and Y Angle set at 45 degrees; this is the standard 3D display.
  - **Full 3D View**—displays the graph based on the positions of the dots and slider on the dialog box; this option must be selected to drag the dots. Turning off this option returns the graph to the standard 3D display.
  - **Shadows**—displays shading on the edges of the graph's features to enhance the 3D representation.
3. Drag the dots around the x- and y-axis circles.
  - Dragging the x-axis dot rotates the graph from left to right.
  - Dragging the y-axis dot rotates the graph from top to bottom.

As you drag the dots, the reference figure represents the amount of rotational change to the graph. The X Angle and Y Angle numbers also change as you drag the dots.

**Tip:** You can also enter numbers for the X Angle and Y Angle in the respective boxes. Entering numbers instead of dragging the dots is often a good way to get the exact rotation for a series of graphs.

4. To rotate the graph in the z-axis, drag the slider under the reference figure.  
Dragging the slider increases or decreases the amount of depth to the graph.
5. Click Apply to rotate the graph based on the settings in the dialog box.
6. Click OK when the graph is rotated as you want it.

**Figure 3–19** *Sample Rotated Graphs*



### 3.3.6 Changing the Graph's Colors and Patterns

The tool bar on the Graph window includes a set of colors and patterns for changing the colors and adding patterns to the graph.

To change a color or pattern:

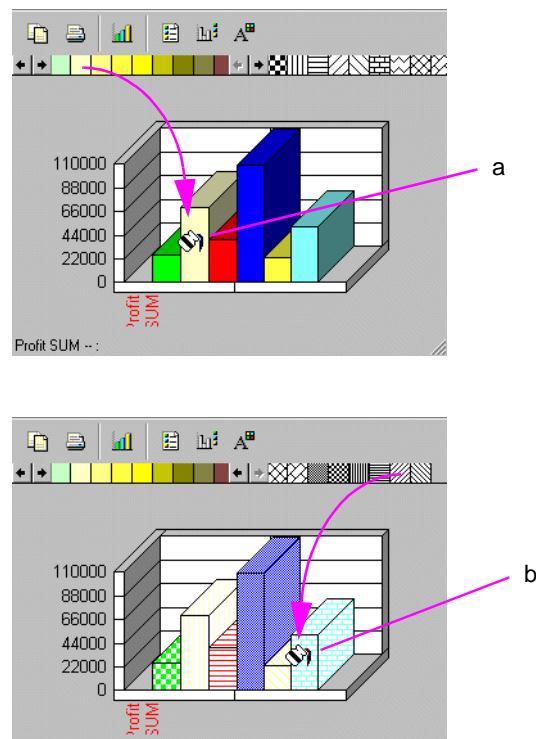
1. Drag the color or pattern from the tool bar onto the portion of the graph you want to change.

The pointer becomes a paint jar.

2. Put the paint jar onto the portion to recolor, and release the mouse button.

You can recolor the plotted data, the axes, the legend background, and the graph's background.

**Figure 3-20** *Changing a Graph's Colors and Patterns*



**Key to Figure 3–20**

- a. Drag a color from the color bar over a section of the graph to change the color of that section. Note that the legend also changes.
- b. Drag a pattern from the pattern bar over a section of the graph to change the pattern of that section. Note that the legend also changes.

If you apply a pattern to a graph that has a color, the black bits of the pattern become the color. A graph can be patterned or solid colors, but not both.

If you want a colored pattern, first drag a color down to the graph, then drag a pattern down to the graph.

To remove a pattern from the graph:

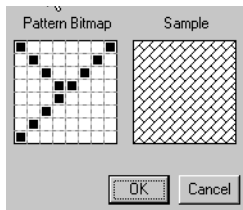
1. Drag one of the colors from the tool bar onto the pattern on the graph.
2. The pattern is removed and the graph becomes a color.

### 3.3.6.1 Creating Custom Patterns

To create a custom pattern:

1. Double-click on a pattern on the tool bar.  
The Pattern Editor appears.

**Figure 3–21** *Pattern Editor*



2. Put the pointer on the pattern bitmap. The pointer becomes a pencil tool.
3. Click on the squares to reverse their color. The sample on the right shows the new pattern.
4. Click OK when you're finished.

The new pattern replaces the original one you started with on the tool bar.

### 3.3.6.2 Creating Custom Colors

To create a custom color:

1. Double-click on a color on the tool bar.

The Color dialog box appears.

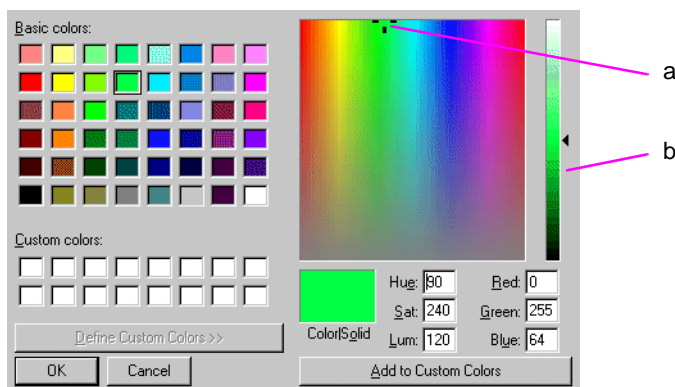
**Figure 3–22 Color Dialog Box**



2. Click Define Custom Colors.

The dialog box expands to show the tools for defining a custom color.

**Figure 3–23 Color Dialog Box with Custom Colors**



**Key to Figure 3-23**

- a. Reference marker indicating the position of the current color in the color spectrum.
  - b. Slider bar for adjusting the color hue, saturation, and luminosity.
3. Click on one of the empty spaces in the Custom colors panel.

To edit one of the custom colors already in the panel, click on it instead.

4. Drag the reference marker around in the colors.

As you drag the Reference Marker, the Color | Solid box shows the new color. Color refers a dithered color if your computer is set to show dithered colors. Solid refers to the nearest solid (undithered) color. Note that luminance remains constant as you drag the marker.

5. Drag the slider up and down to change luminance. Hue and Saturation (Sat) remain constant.

You can also type the color numbers directly in their boxes.

6. When the new color is correct, click Add to Custom Colors. The new color is added to the panel of new colors.
7. Click OK when you're finished.

The new color replaces the original one you started with on the tool bar.



# Part II

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## Working with Discoverer Desktop



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# Pivoting, Drilling, and Sorting Data

This chapter explains how to find and arrange the data that you want to analyze.

The topics include:

- Pivoting data
- Drilling into and out of the data's details
- Sorting data

## 4.1 Pivoting Data

Laying out data on a table or crosstab organizes it so you can easily compare results side by side, spot trends when you see progressions, track progress over weeks, months and years, and so on. In other words, how the data is arranged is an important aid to analysis because it reveals data relationships that may not be apparent.

Pivoting data is how you move the data from one axis to another to arrange it for efficient analysis. For example, you can pivot data from the body of the table or crosstab to the page axis and back again to see new data relationships.

One way to think about pivoting data is to visualize the data plotted on a graph, and then switching data from the x-axis to the y-axis.

### 4.1.1 Pivoting for Comparison and Analysis

Pivoting a column on a table from the body to the page axis or from the page axis to the body rearranges the order of the data as it is presented and helps you organize the data. On a crosstab, however, pivoting a column has a much different meaning because the positions of data columns determine the data interrelationships of the items on the crosstab. Therefore, pivoting a column on a crosstab not only changes the positions of the data—you may see different numerical values as the data relationships vary. Figures 4-1 and 4-2 provide examples of pivoting on tables and crosstabs.

**Figure 4-1** An Example of Pivoting Data on a Table

Figure 4-1 illustrates the process of pivoting data on a table in Oracle Discoverer. The figure is divided into three parts, labeled a, b, and c.

**Part a:** Shows a table with the following data:

	Year	Region	Profit SUM
1	1998	Central	\$47,204
2	1999	Central	\$43,813
3	2000	Central	\$25,157
4	1998	East	\$71,766
5	1999	East	\$67,249
6	2000	East	\$40,402
7	1998	West	\$39,395
8	1999	West	\$37,777

The Page Items axis at the top shows 'Department: Video Rental'. A pink arrow labeled 'a' points to the Page Items axis.

**Part b:** Shows the Region column being dragged to the Page Items axis. A pink arrow labeled 'b' points to the Region column.

**Part c:** Shows the Region column pivoted to the Page Items axis. The Page Items axis now shows 'Department: Video Rental' and 'Region: Central'. The table displays only the data for the 'Central' region:

	Year	Profit SUM
1	1998	\$47,204
2	1999	\$43,813
3	2000	\$25,157

A pink arrow labeled 'c' points to the 'Region: Central' dropdown in the Page Items axis.

#### Key to Figure 4-1

- The Page Items axis.
- The Region Item is selected, then dragged to the Page Items axis.
- Region is now a pivoted Item on the Page Items axis. The value 'Central' is selected, which means that only Central's profits are displayed in the table.

**Figure 4–2 Another Example of Pivoting Data on a Table**

Page Items:		Department: Video Rental	Region: Central
	Year	Profit SUM	
1	1998	\$47,204	
2	1999	\$43,813	
3	2000	\$25,157	

a

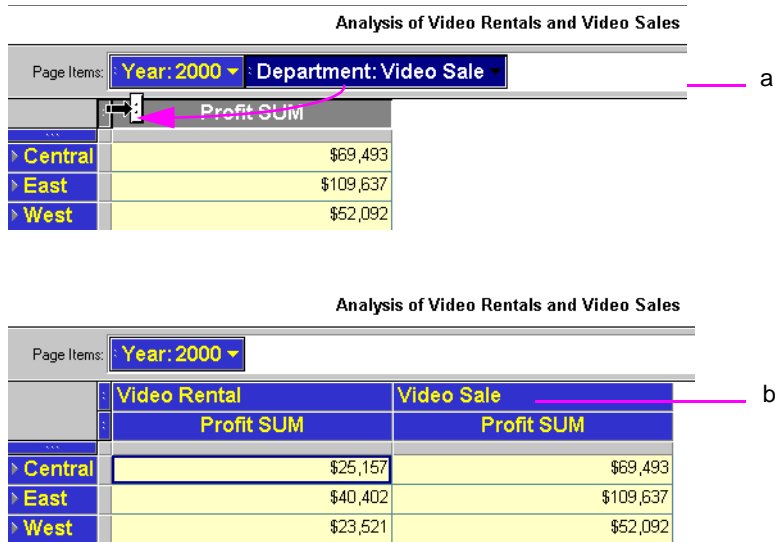
Analysis of Video Rentals and Video Sales				
Page Items:				
	Year	Region	Department	Profit SUM
1	1998	Central	Video Rental	\$47,204
2	1999		Video Rental	\$43,813
3	2000		Video Rental	\$25,157
4	1998		Video Sale	\$67,084
5	1999		Video Sale	\$97,921
6	2000		Video Sale	\$69,493

b

Key to [Figure 4–2](#)

- a. The Items Department and Video Sales are dragged from the Page Items axis to the table.
- b. The Page Items axis is now empty, and the table now displays all four Items. You can now see all dimensions of the data, which is useful for an overview of the data, but not as useful for detailed analysis.

**Figure 4–3 An Example of Pivoting Data on a Crosstab**



**Key to Figure 4–3**

- a. The Department Item is dragged from the Page Items axis to the table.
- b. The table now displays profits for Departments Video Rentals and Video Sales.

**Figure 4-4** Another Example of Pivoting Data on a Crosstab

Figure 4-4 consists of two screenshots of a PivotTable interface. The top screenshot, labeled 'a', shows a PivotTable with 'Department: Video Sale' as the page item. The PivotTable is in a crosstab layout with 'Profit SUM' as the value field. The columns are years: 1998, 1999, and 2000. The rows are departments: Central, East, and West. A pink arrow points from the '1998' column header to the left axis. The bottom screenshot, labeled 'b', shows the same PivotTable after pivoting. The columns are now departments: Central, East, and West. The rows are years: 1998 and 1999. A pink arrow points from the 'East' row header to the top axis. The '1999' row total is \$330,556.

**a**

Profit SUM			
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

**b**

Profit SUM	
1998	\$232,738
Central	\$67,084
East	\$108,558
West	\$57,096
1999	\$330,556

**Key to Figure 4-4**

- The Calendar Date Year Item is dragged from the top axis to the left axis.
- The table now displays profits in a single column, and includes sub-totals for each Calendar Date Year. You can see a new data relationship at the new intersection of a column and a row; in this case, the Profit SUM for the year.

## 4.1.2 Pivoting Data on a Table

To pivot an Item from a table to the Page Items axis:

1. Select the column heading and drag it up to the page axis area.

As you drag the pointer into the page axis area, it changes to an arrow with a horizontal column marker indicating you're moving a vertical column (in the table body) to a horizontal position (the page axis item).

2. Release the mouse button. The column moves to the page axis.

**Figure 4-5** Pivoting Data from a Table to a Page Items axis

**Figure 4-5** illustrates the process of pivoting data from a table to a Page Items axis. The figure shows two stages of a pivot table.

**Stage 1:** The Page Items axis contains "Department: Video Rental". The table has columns for "Year", "Region", and "Profit SUM". A mouse cursor is shown dragging the "Region" column header to the Page Items axis.

	Year	Region	Profit SUM
1	1998	Central	\$47,204
2	1999		\$43,813
3	2000		\$25,157
4	1998	East	\$71,766
5	1999		\$67,249
6	2000		\$40,402
7	1998	West	\$39,395
8	1999		\$37,777

**Stage 2:** The Page Items axis now contains "Department: Video Rental" and "Region: Central". The table is filtered to show only data for the "Central" region.

	Year	Profit SUM
1	1998	\$47,204
2	1999	\$43,813
3	2000	\$25,157

### Key to Figure 4-5

- a. The Page Items axis.
- b. The Region Item is selected, then dragged to the Page Items axis.
- c. Region is now a pivoted Item on the Page Items axis. The value 'Central' is selected, which means that only Central's profits are displayed in the table.

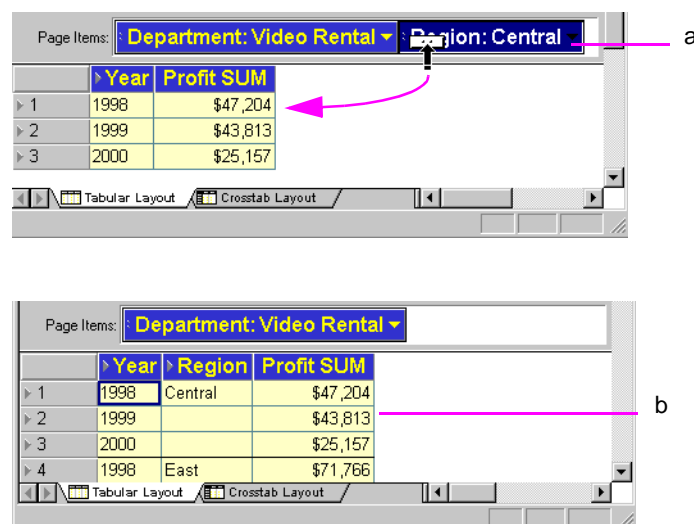


To pivot an Item from the Page Items axis to a table:

1. Click the item marker on the page axis item. The item marker is the two dots at the front of the item name.

The pointer changes to a vertical arrow indicating that you can move the item down to the table body:

**Figure 4–6** Pivoting Data from a Page Items axis to a table



Key to **Figure 4–6**

- a. The Region Item is dragged from the Page Items axis to the table.
  - b. The table now displays profits for all three Regions.
2. Drag the pointer down onto the table where you want the page axis item to go.  
The pointer changes to a left-right arrow indicating you can put the page axis item into the table body.
  3. Release the mouse button. The page axis item becomes a column in the table.

You can insert the page axis item into a table at three locations:

**Left-most column**—drag the pointer onto the first column in the table. The page axis item is inserted to become the first column.

**Middle columns**—drag the pointer onto a column head. The page axis item is inserted to the left of that column.

**Right-most column**—drag the pointer onto the blank space after the last column. The page axis item is added as the right most column of the table.

**Figure 4-7** Column locations for inserting Items

The screenshot shows a table with the following data:

	Year	Region	Profit SUM
1	1998	Central	\$47,204
2	1999		\$43,813
3	2000		\$25,157
4	1998	East	\$71,766

Labels 'a', 'b', and 'c' are positioned to the left of the table. Pink lines connect them to the table: 'a' points to the left of the first column, 'b' points to the 'Region' header, and 'c' points to the right of the last column.

Key to [Figure 4-7](#)

- a. The left-most column.
- b. The middle columns.
- c. The right-most column.

### 4.1.3 Pivoting Data on a Crosstab

Because the data relationships on a crosstab depend on the intersection of the rows and columns, pivoting data from one axis to another creates a new set of data relationships. In addition, the new arrangement can add levels of data to an axis. For example, if the data on the side axis is organized into three levels such as Region, City, and Store Name, pivoting the Year item to the side axis adds a fourth level of data to that axis, (see [Figure 4–6](#) for an example).

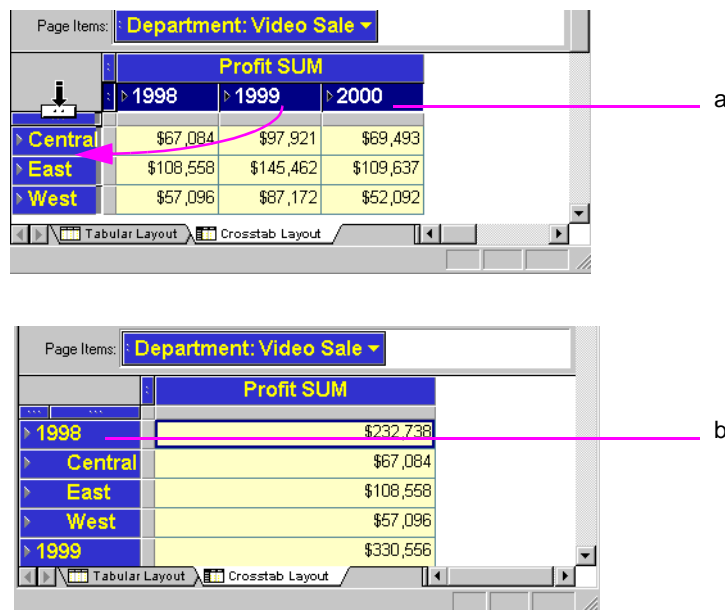
To pivot data on a crosstab:

1. Click the axis item marker of the item to pivot.
2. Drag the pointer to its position on the new axis. You can drag the pointer onto the axis marker or onto one of the rows at that level.

The direction of the pointer indicates how the item will pivot from horizontal to vertical, or vice versa.

3. Let go of the mouse button. The item moves to the new axis.

**Figure 4–8** Pivot Example From the Top Axis to the Side Axis



Key to [Figure 4-8](#)

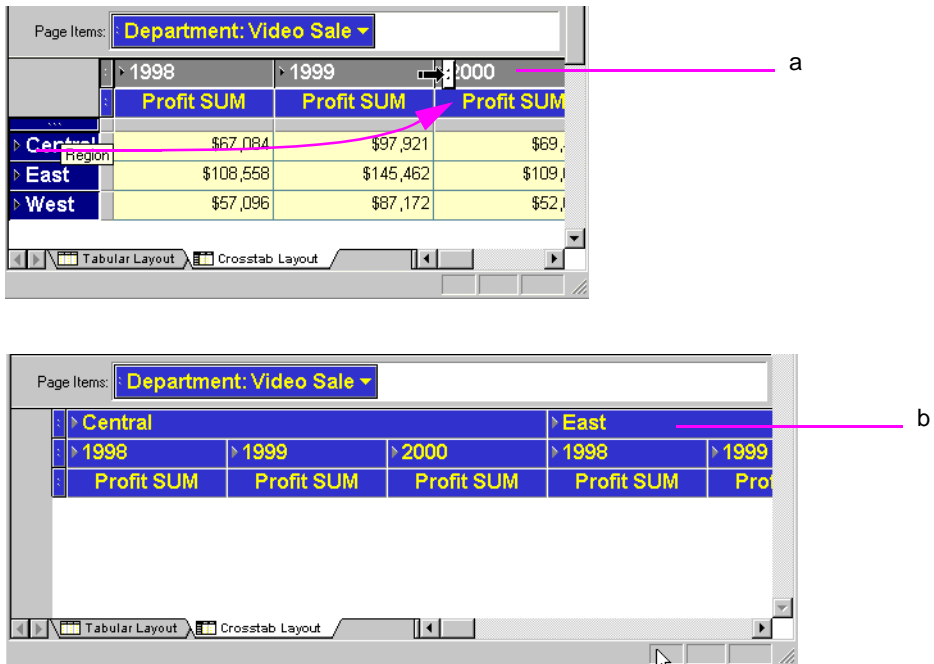
- a. The Calendar Date Year Item is dragged to a new position on the left axis.
- b. The table now displays profits in a single column, and includes sub-totals for each Calendar Date Year.

Notice that the new crosstab now has only one column for the Profit SUM. The Calendar Date Year 2000 data is further down on the side axis. Scroll down the page to see it.

4.1.3.1 Producing erroneous results when pivoting

As you can see, it is easy to pivot data in Discoverer. However, sometimes this ease of use also makes it easy to produce erroneous results. For example, in a Crosstab layout, if you remove everything from your left axis or your top axis, you can produce a meaningless table, see example [Figure 4-9](#).

**Figure 4-9** Producing erroneous results by pivoting data



**Key to Figure 4-9**

- a.** The Region Item is dragged from the left axis to the top axis.
- b.** Because there is now no cross-tabulation, no profits data is displayed on the table.

## 4.1.4 Duplicating Tables and Crosstabs

When you have a Worksheet, you can duplicate it as another Worksheet of the same type, or you can convert the Worksheet to a different type, for example, into a Table or Crosstab.

For example, if your data is currently displayed as a table, but you want to analyze it using the pivoting features of a crosstab, you can duplicate the table as a crosstab.

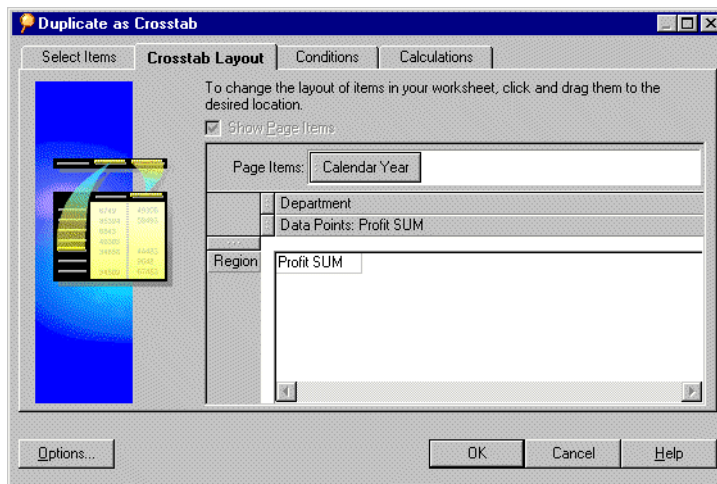
To convert a Worksheet table to another Worksheet type:

1. Choose **Sheet | Duplicate a Table** or **Sheet | Duplicate as Crosstab**.

The dialog box for duplicating the table or crosstab appears, with the Crosstab Layout tab visible.

Figure 4–10 shows the Duplicate as Crosstab dialog box. The dialog box for duplicating tables is similar.

**Figure 4–10 Duplicate as Crosstab Dialog Box**



2. Click OK now if you want to accept the default table or crosstab configuration.
3. If you want to change the default table or crosstab configuration, choose from the four tabs and configure your duplicate table.

The tabs across the top of the dialog are used as follows:

- **Select Items**—adds new items to the new table or crosstab (see [Section 7.1.2, "Selecting the Data"](#) for details).
  - **Conditions**—adds conditions to the new table or crosstab (see [Section 5.5, "Finding Data that Meets Conditions"](#) for details).
  - **Sort**—(available for tables only) sorts the data on the new table (see [Section , "Key to Figure 4-27"](#) for details).
  - **Calculations**—defines calculations on the new table or crosstab (see [Section 8.3, "Creating Calculations"](#) for details).
4. Click OK to create your duplicate table.

A new Worksheet is created in your Workbook containing the duplicate table or crosstab.

## 4.2 Drilling Into and Out of Data

Drilling into data shows more details about the data. Drilling out of data (or collapsing) consolidates the data for a broader overview. Typically, you drill into data to analyze it at a finer level of detail, and drill out to get the “bigger picture.”

In addition to drilling into and out of data on the current table or crosstab, you can also drill to another worksheet, or to a related item that is not on the worksheets. See [Section 4.2.5, "Drilling with the Drill Dialog Box"](#) for details.

Discoverer provides two ways to drill into and out of data:

- Drilling directly from a table or crosstab - clicking a Drill Point to display a Drill Icon is the quickest way to drill, and covers many types of drilling typical in routine data analysis, (see [Figure 4-11](#)).
- Drilling from the Drill dialog box - using this menu option provides even more options for drilling. Select an Item or cell and choose Sheet | Drill from the main Discoverer menu. You can also choose the Drill option from the Discoverer tool bar.

**Figure 4-11** *Drilling in Discoverer*

Analysis of Video Rentals and Video Sales			
Page Items: Department: Video Sale			
Profit SUM			
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

Key to [Figure 4-11](#)

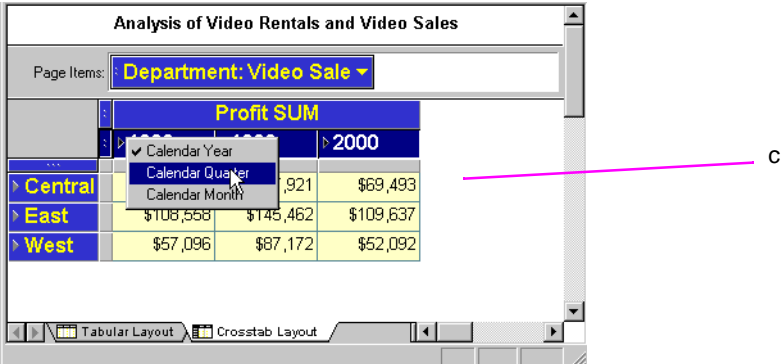
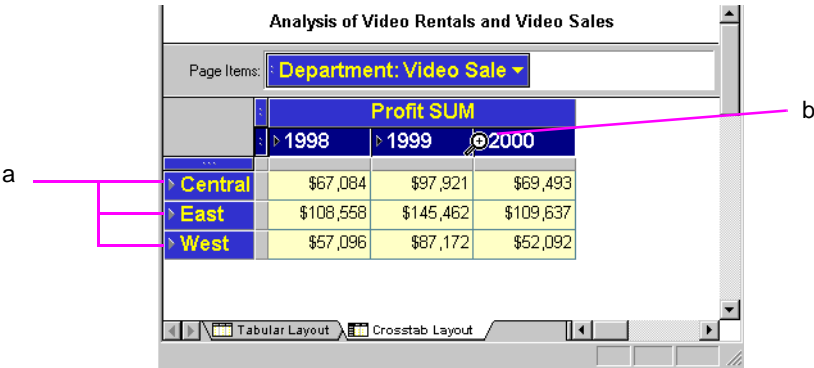
- a. Drill Points are Items that you can drill down into to look at more detail.
- b. Drill Icons are displayed when you click a Drill Point, and allow you choose drill options.



### 4.2.1 Drilling down using the Drill icon

This section explains how to use the Drill icon to drill down into data.

Figure 4–12 Drilling down using the Drill icon



Analysis of Video Rentals and Video Sales

Page Items: Department: Video Sale

	1998				1999	
	Q1	Q2	Q3	Q4	Q1	Q2
Central	\$15,531	\$14,734	\$19,053	\$17,766	\$21,670	
East	\$25,544	\$28,758	\$26,313	\$27,944	\$31,134	
West	\$13,752	\$16,288	\$14,296	\$12,761	\$20,307	

Tabular Layout Crosstab Layout

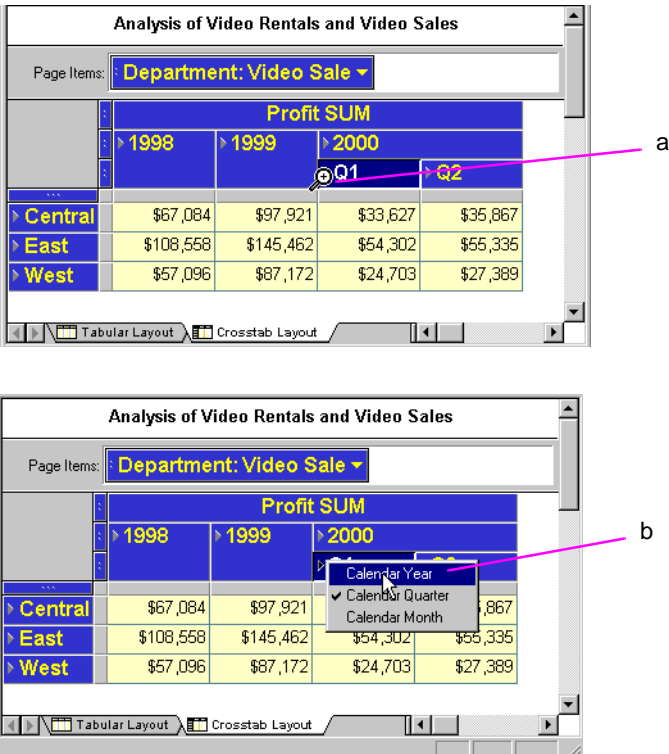
Key to [Figure 4-12](#)

- a. Right-pointing arrows on Items indicate Drill-points, which are data points at which you can drill down to further levels of detail.
- b. When you move your cursor over a Drill-point, the icon changes to a magnifying-glass with a cross at its center, (the Drill-icon).
- c. Click the Drill-icon to see the drilling options available, and select an option. Notice that all Years are selected.
- d. The Worksheet displays the drilled data for all Years selected.

### 4.2.2 Drilling out using the Drill icon

This section explains how to use the Drill icon to drill out of data.

Figure 4-13 Drilling out (or collapsing) using the Drill icon



The screenshot shows a window titled "Analysis of Video Rentals and Video Sales". At the top, there is a "Page Items:" section with a dropdown menu set to "Department: Video Sale". Below this is a table with a blue header row titled "Profit SUM". The header row has three columns: "1998", "1999", and "2000", each with a small right-pointing triangle icon to its left. The table body has three rows: "Central", "East", and "West", each with a small right-pointing triangle icon to its left. The data values are: Central (\$67,084, \$97,921, \$69,493), East (\$108,558, \$145,462, \$109,637), and West (\$57,096, \$87,172, \$52,092). At the bottom of the window, there are two layout options: "Tabular Layout" (selected) and "Crosstab Layout". A pink arrow labeled "C" points to the "2000" column header.

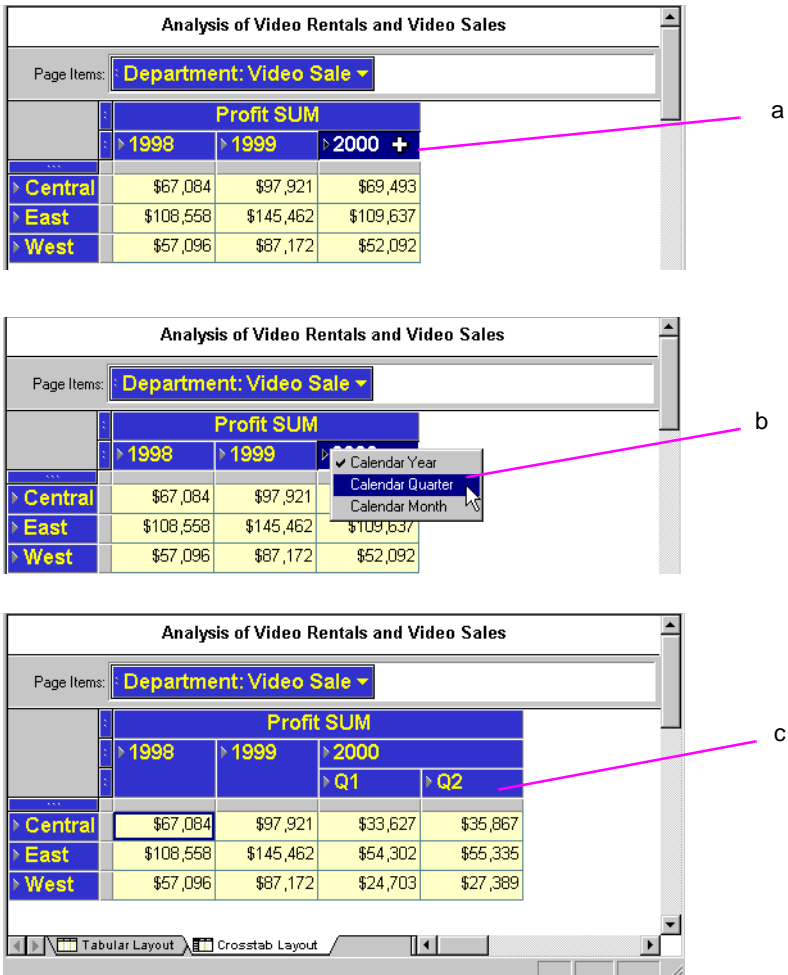
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

Key to [Figure 4-13](#)

- a. Click the Drill-icon for the data that you want to collapse.
- b. From the list of drill options, choose a higher level to which to collapse.
- c. The drilled data is collapsed and the original Worksheet is displayed.

### 4.2.3 Drill examples

Figure 4-14 Selective drilling using the Drill icon



Key to Figure 4-14

- a. The Worksheet displays data for three years, 1998, 1999, and 2000. In this example we want to only drill down to quarter level data for the year 2000.
- b. The Drill-icon for the year 2000 is clicked and Calendar Quarter is selected.

- c. The Worksheet displays quarter level profits for the year 2000, (named Q1 and Q2), but not the years 1998 and 1999.

**Figure 4–15 Drill into Data on a Table Column**

**a**

	Year	Profit SUM
1	1998	\$47,204
2	1999	\$43,813
3	2000	\$25,157

**b**

	Year	Profit SUM
1	1998	\$47,204
2	1999	\$43,813
3	2000	\$25,157

**c**

	Year	Quarter	Profit SUM
1	1998	Q1	\$11,561
2	1999	Q1	\$10,778
3	2000	Q1	\$12,069
4	1998	Q2	\$11,156
5	1999	Q2	\$10,804
6	2000	Q2	\$13,088
7	1998	Q3	\$11,295
8	1999	Q3	\$10,160

**Key to Figure 4–15**

- Put the pointer on the icon next to the data that you want to drill. In this example, the pointer is on the drill icon for Calendar Year, which means you want to drill into or out of data at this level.
- Click the mouse button to see the drop-down menu for the selected item. The menu options apply only to the data the you want to drill. In this example, the options for Calendar Year are Calendar Quarter and Calendar Month. Select the level of data that you want to see.
- When you release the mouse button, the new data details appear in a new column in the table; in this case, the Quarter column.

**Figure 4–16 Drill into Data on a Table Row**

**a**

	Year	Profit SUM
1	1998	\$47,204
2	1999	\$43,813
3	2000	\$25,157

**b**

	Year	Profit SUM
1	1998	\$47,204
2	1999	\$43,813
3	2000	\$25,157

**c**

	Year	Quarter	Profit SUM
1	1998	Q1	\$11,561
2	1998	Q2	\$11,156
3	1998	Q3	\$11,295
4	1998	Q4	\$13,192

**Key to Figure 4–16**

- a.** Move the cursor over the row icon for the data that you want to drill. In this example, the pointer is on the icon for 1998, which means that you want to drill to data only for that row (not for all rows).
- b.** From the pull down list, select the level of data that you want to see. Notice that the menu only includes Calendar Quarter and Calendar Month because you are starting from a single Calendar Year row, not the Calendar Year column.
- c.** When you release the mouse button, the new data details appear in a new column in the table; in this case, the Quarter column. Quarter names appear for only the Calendar Date Quarter 1998 because the drilling started there.



**Figure 4–17 Drill Up to a Higher Level of Data on a Table**

a

	Year	Quarter	Profit SUM
▶ 1	1998	Q1	\$11,561
▶ 2	1998	Q2	\$11,156
▶ 3	1998	Q3	\$11,295
▶ 4	1998	Q4	\$13,192

b

	Year	Calendar Year	Profit SUM
▶ 1	1998	Calendar Year	\$11,561
▶ 2	1998	Calendar Quarter	\$11,156
▶ 3	1998	Calendar Month	\$11,295
▶ 4	1998	Q3	\$11,295
▶ 4	1998	Q4	\$13,192

c

	Year	Profit SUM
▶ 1	1998	\$47,204
▶ 2	1999	\$43,813
▶ 3	2000	\$25,157

**Key to Figure 4–17**

- Put the pointer on the icon next to the data from where you want to drill up. In this example, the pointer is on the drill icon for Quarter, which means you want to start the drill at that level.
- Select the level of data that you want to see. As the menu shows, you could drill up from Calendar Quarter (ticked to indicate that it is the current drill level), down to Calendar Month, or up to Calendar Year. This example shows drilling up to Calendar Year.
- When you release the mouse button, the data drills back up the Calendar Year level, and the Quarter column is removed.

To drill into or out of data from the table or crosstab:

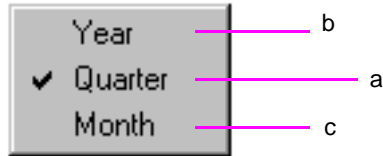
1. Click the drill icon in the column or row with the data that you want to drill. Drill icons are arrowheads that point to the right.

You can also double-click on a crosstab data item's heading to drill quickly. See [Section 4.2.4, "Quick Drilling by Double-Clicking"](#) for details.

To simultaneously drill all the columns or rows at the same level ([Figure 4-18](#)), select them first by clicking the selection box for that level of data. Then put the pointer on the drill icon in any one of the selected columns or rows and click.

2. From the drop-down menu, choose the level of data that you want to analyze.

**Figure 4-18 Sample Drill Menu**

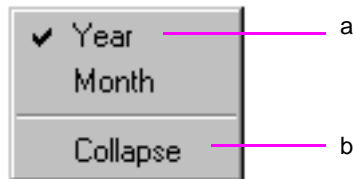


Key to [Figure 4-18](#)

- a. The current drill level is ticked.
- b. To drill back up, select one of the levels above the current drill level.
- c. To drill down, select one of the levels below the current drill level.

If you select a level that has already been drilled down, you can collapse the levels back to their previous state.

**Figure 4-19 Sample Collapse Drill Data Menu**



Key to [Figure 4-19](#)

- a. The current drill level is ticked.

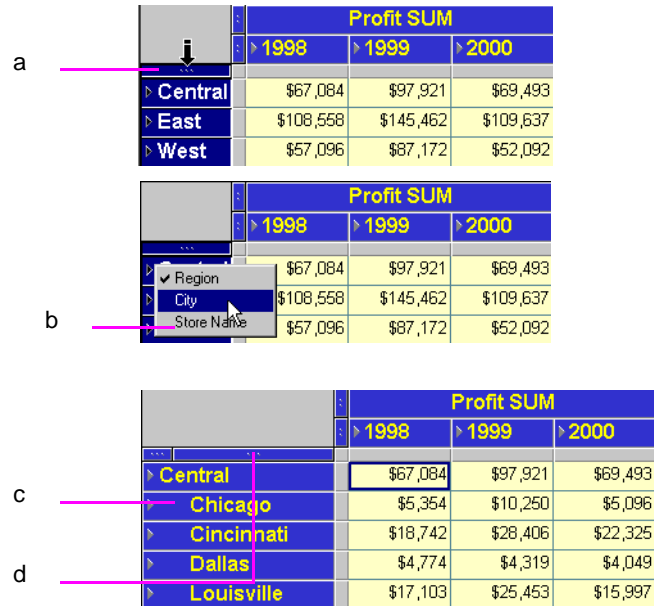
- b. To drill back up, select Collapse.

Note that the Quarter level does not appear on the sample menu because the data is already drilled to that level and you cannot collapse a level into itself.

**Tip:** Use Collapse after you drill data down several levels and want to get back to the original level in one step.

You can also collapse drilled data by selecting the level to collapse to and then choosing **Sheet | Collapse**.

**Figure 4–20 Drill to All Rows At the Same Level on the Side Axis**



**Key to Figure 4–20**

- a. Select the Region level by clicking on the selection box for the Region data item. All the rows of Regions in the entire worksheet are selected.
- b. Now click on any drill icon on any one of the selected Region rows. Then choose a drill level from the options displayed, in this case drill down to City. Alternatively, you could drill further down to Store Name level.
- c. When City is selected, City data is displayed for all Regions.
- d. Note that a selection box has been added on the side axis for the City data item.

**Figure 4–21 Drill to a Single Row on the Side Axis**

a

	Profit SUM		
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

b

	Profit SUM		
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

c

	Profit SUM		
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
Atlanta	\$6,220	\$9,547	\$7,305
Boston	\$10,719	\$13,375	\$10,765
Miami	\$4,686	\$5,369	\$2,969

d

**Key to Figure 4–21**

- Put the pointer on the drill icon of the row from which you want to drill, in this case the East Region.
- Select the level to drill to, in this case, drill down to City.
- The resulting drill shows Cities for the East Region only.
- Note that a selection box has been added on the side axis for the City data item.

The data on the side axis in the Discoverer Tutorial database is organized in the hierarchical sequence of Region, City, and Store Name. Typically, you would drill from Region to City and then from City to Store Name. However, in some instances, you may want to drill from Region directly to Store Name.

The following figure shows how to drill to a sub-level on the side axis. This can also be thought of as *skipping* a hierarchical level.

**Figure 4–22 Drill to a Sub-Level on the Side Axis**

**a**

Profit SUM			
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

**b**

Profit SUM			
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
West	\$57,096	\$87,172	\$52,092

**c**

Profit SUM			
	1998	1999	2000
Central	\$67,084	\$97,921	\$69,493
East	\$108,558	\$145,462	\$109,637
Store No. 1	\$44,269	\$57,501	\$42,226
Store No. 17	\$15,881	\$21,223	\$12,680
Store No. 18	\$4,686	\$5,369	\$2,969

**d**

**Key to Figure 4–22**

- Put the pointer on the drill icon of the row from which you want to drill, in this case the East Region.
- Select the level to drill to, in this drill straight down to Store Name.
- The resulting drill shows Store Names for the East Region only.
- Note that a selection box has been added on the side axis for the Store Name data item because now that data is visible.

## 4.2.4 Quick Drilling by Double-Clicking

You can quickly drill down from one level to the next on a crosstab by clicking in a data item's column heading. The drill automatically drills to the next level in the data hierarchy. For example, clicking on the column heading Region automatically drills to City because that's the next level in the hierarchy—Region, City, Store Name.

**Figure 4–23** Drill to a Single Row on the Side Axis by Double-Clicking

a

	Profit SUM		
	> 1998	> 1999	> 2000
> Central	\$67,084	\$97,921	\$69,493
> East+	\$108,558	\$145,462	\$109,637
> West	\$57,096	\$87,172	\$52,092

b

	Profit SUM		
	> 1998	> 1999	> 2000
> Central	\$67,084	\$97,921	\$69,493
> East	\$108,558	\$145,462	\$109,637
> Atlanta	\$6,220	\$9,547	\$7,305
> Boston	\$10,719	\$13,375	\$10,765
> Miami	\$4,686	\$5,369	\$2,969

Key to [Figure 4–23](#)

- Put the pointer in the row from which you want to drill, but don't put the pointer on the drill icon. A white cross is displayed. Double-click the white cross to drill down.
- Quick drilling drills to the next level of the data. In this example, Region is drilled to City for only the selected row, (the Eastern Region). Double-click on the East Region once more to drill down to the next level of data - Store Name.

**Note:** Double-clicking on a column head on a table does not drill down. Instead, it displays the data item's properties.

## 4.2.5 Drilling with the Drill Dialog Box

Double-clicking on an individual cell displays the Drill dialog box.

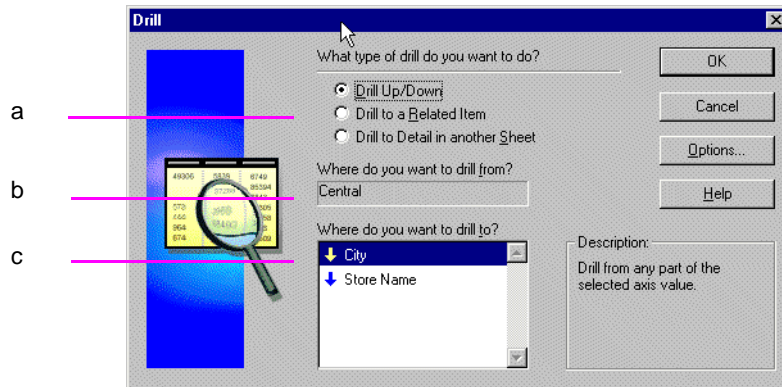
Use the Drill dialog box to drill up and down from columns and rows on the tables and crosstabs and additionally, to related items on the worksheet or to related items on another worksheet.

To drill with dialog box:

1. Display the table or crosstab with the data you want to drill.
2. On the table or crosstab, click the data item where you want to begin drilling.
3. Choose **Sheet | Drill**, or **double-click on the data item**.

The Drill dialog box appears.

**Figure 4–24 Drill Dialog Box**



Key to [Figure 4–24](#)

- a. Drill options.
  - b. Where to drill from.
  - c. Where to drill to. The arrow indicates the direction of the drill. A down-arrow indicates a drill-down. An up-arrow indicates a drill-up (or collapse).
4. Select a drill option:



**Up/Down**—drills down to details or up to an aggregate level in the data's predefined hierarchy, such as Year to Quarter to Month.

**Drill to a Related Item**—drills down to details or up to an aggregate level to data that is related but that is not in the data's predefined hierarchy, such as City to Quarter or Region to Product.

**Drill to Detail in another Sheet**—drills to data that is in the workbook, but that isn't in the data's hierarchy; another sheet is created to show the details.

5. Select where to drill from.

The row or column you selected appears here. You can also drill from another starting point by clicking the drop-down arrow and selecting from the list that appears. The choices in the list pertain to the data item to start the drilling and the type of drill option you selected.

For example, if you selected a column heading and Drill Up/Down, the other options are in the column's data hierarchy. The drop-down arrow is not available if you selected a data item that does not have other levels for drilling.

6. Select where to drill to.

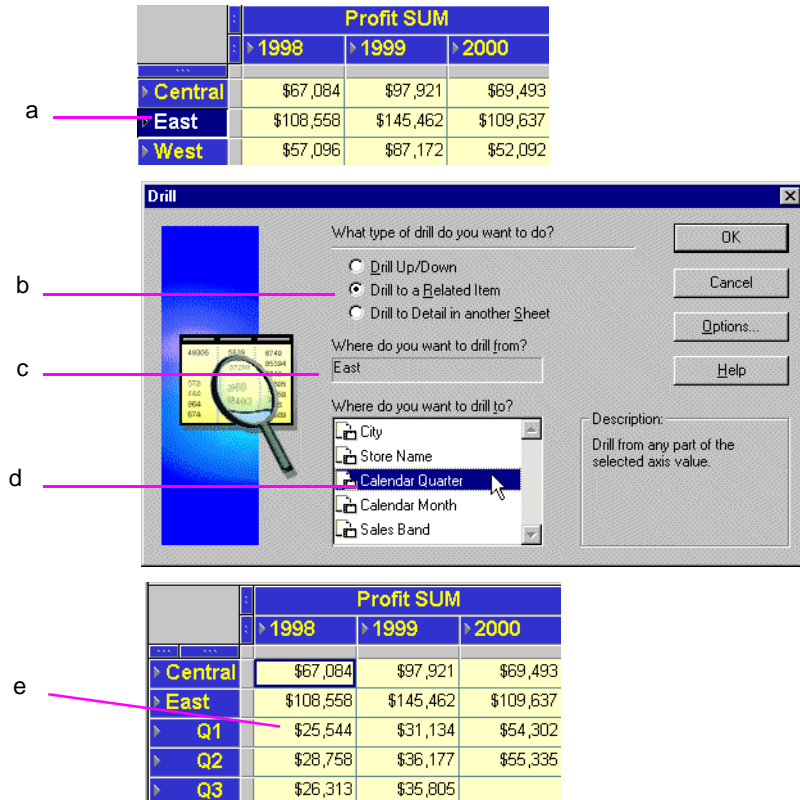
The choices in the list show where you can drill to. The choices depend on the other selections on the dialog box.

7. Click OK. The data on the table or crosstab is then drilled to the level you specified on the dialog box.

The following figures show examples of drilling from the Drill dialog box.

In this example, the drilling starts at the City data, which is in the hierarchy of data—Region, City, Store Name. However, Quarterly data is related to City, so you can drill from City to Quarter.

**Figure 4–25 Drill to Related Item with the Drill Dialog Box**

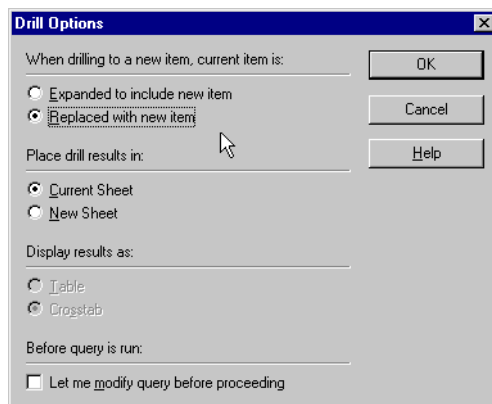


**Key to Figure 4–25**

- a. The East Region item is selected from the left axis.
- b. 'Drill to a Related Item' is selected.
- c. The 'Where do you want to drill from?' box confirms the drill-point.
- d. Calendar Quarter is selected from the list of related drill options.
- e. Click OK to view the East Region data broken down into Quarters.

The Drill Options dialog box offers additional ways to customize the drilling results.

**Figure 4–26** *Drill Options Dialog Box*



Click the **Options** button on the Drill dialog box to open the Drill Options dialog. Choose from the following options:

**Expand to include new item**—the table or crosstab is enlarged to fit in the new level of data (see [Figure 4–27](#) for an example).

**Replaced with new item**—the data level where the drill started is replaced with the new level of data (see [Figure 4–27](#) for an example).

**Current Sheet**—adds the new level of data on the current worksheet.

**New Sheet**—creates a new worksheet to display the drilled data.

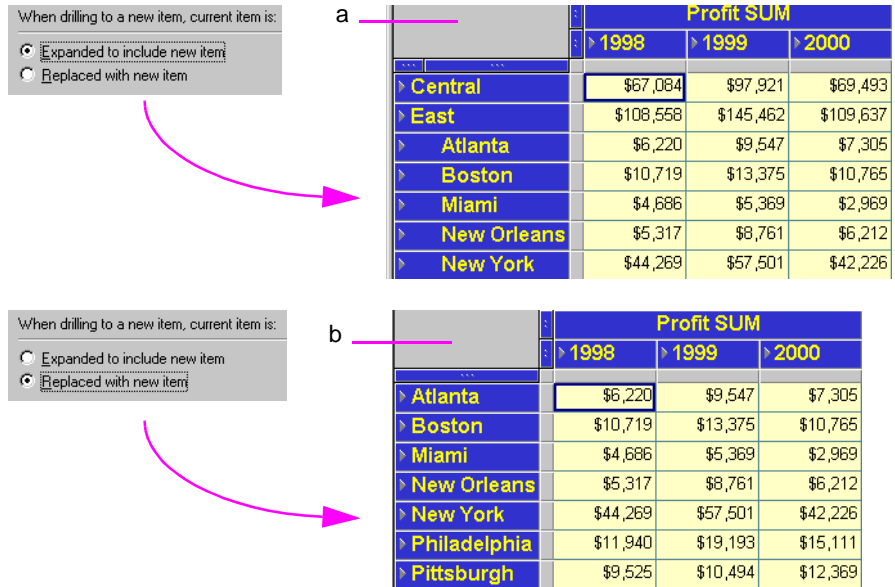
**Table**—display the results in a table.

**Crosstab**—display the results in a crosstab.

**Let me modify query before proceeding**—displays the New Sheet dialog box so you can format the new layout, add conditions and calculations before the drilling takes place. See [Section 7.1, "Building a New Workbook or Worksheet"](#) for a description of the options.

[Figure 4–27](#) shows the difference between expanding and replacing data.

**Figure 4-27 Expand or Replace Drilled Data**



**Key to Figure 4-27**

- a. In this example, the City data is included with the Region data.
- b. In this example, the City data replaces the Region data.

## 4.3 Sorting Data

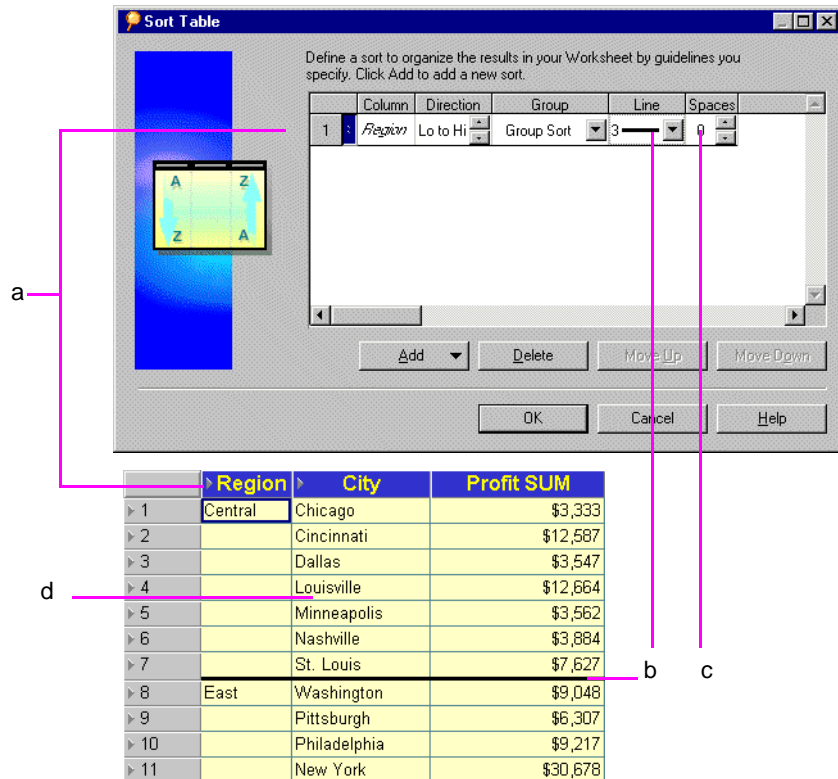
Sorting arranges text data in alphabetical order and numeric data in numerical order. Creating an ordered list of customers, or employees, or product part numbers are typical uses of sorting. However, sorting is also helpful for analyzing data. For example, sorting sales data from most profitable sales to least profitable sales shows the relative standing of your company's best selling products or the most effective salespeople.

You can also group data and then sort within the group. For display and reporting purposes, each group of data can start on a new page. See [Section 4.3.1.2, "Group Sorting"](#) for details.

### 4.3.1 Sorting Data on Tables

[Figure 4-28](#) shows an example of sorting data on a table and the results.

Figure 4–28 Sorting Example on a Table



Key to Figure 4–28

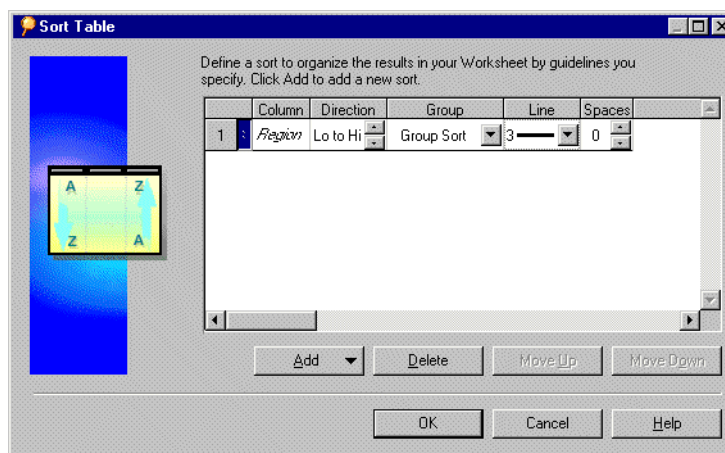
- a. A sort is selected on Region, which sorts the Region column alphabetically from A - Z, (East - West).
- b. A line of size 3 separates the sort groups, (Regions).
- c. The Spaces option is left blank, so that there are no spaces between the sort groups (Regions).
- d. Because **Group Sort** is also selected under the **Group** option, the Cities are also sorted alphabetically within Region.

To sort data on a table:

1. Display the table with the data you want to sort.
2. Choose **Tools | Sort**.

The Sort Table dialog box appears. It shows the sorting options currently selected for the table.

**Figure 4–29 Sort Table Dialog Box**



3. Select the sorting options and click OK.

You can choose from these options in the Sort Table dialog box:

**Column**—The name of the column containing the data you want to sort. You can add additional columns to sort at several levels on the table. See the next section for details.

**Direction**—The sort order of the data in the column. Click the up and down buttons in the Direction box to choose the sort order:

- Lo to Hi—A to Z for text; increasing for numbers (e.g., 1 to 10).
- Hi to Lo—Z to A for text; decreasing for numbers (e.g., 10 to 1).

**Group**—The manner of grouping and displaying sorted data. Click the drop-down button in the Group box and choose one of the options:

- **Group Sort**—Data is sorted within each group. The group name appears once at the beginning of the grouped data.
- **Page Break**—Mainly for printing reports, this option starts a new page at the start of each new group. The group name appears at the top of the page.
- **Hidden** - Sub-group the data at the next hierarchical level, but do not display the sub-grouped item.  
For example, if the hierarchy is Year, Quarter, Month, sorting on Year with the **Hidden** option selected sorts on Quarter within Year but does not display the Quarter Item, or line separators for each Quarter. To display sub-grouped Items, change this option to **Group**.
- **None**—The data in the column is not grouped and is all sorted as a unit.

**Line**—The thickness of the line separating the data groups. Click the drop-down button in the Line box and choose a line thickness. The figures in this section show a line for subtotals; you can also use a line when displaying totals.

**Spaces**—The number of cell spaces between groups. Click the up and down buttons in the Spaces box to choose the spacing.

#### 4.3.1.1 Sorting Data Within Data

By adding more sort columns, you can sort data within data.

For example, if you sort data first by Region and then by City, data is sorted alphabetically by Region (Central, East, West) and then within the Regions alphabetically by City (Atlanta, Boston, Miami, and so on). However, if you sort first by Region and then by a numeric column, such as Profit SUM, the data is sorted alphabetically by Region and then numerically by the Profit.

Here is an example showing sorting applied to two columns:



**Figure 4-30 Two Columns Sorted**

	Column	Direction	Group	Line	Spaces
1	Region	Lo to Hi	Group Sort	3	0
2	City	Lo to Hi	None	...	...

a

	Region	City	Profit SUM
1	Central	Chicago	\$3,333
2		Cincinnati	\$12,587
3		Dallas	\$3,547
4		Louisville	\$12,664
5		Minneapolis	\$3,562
6		Nashville	\$3,884
7		St. Louis	\$7,627
8	East	Atlanta	\$2,865
9		Boston	\$6,998
10		Miami	\$2,563
11		New Orleans	\$4,092

	Column	Direction	Group	Line	Spaces
1	Region	Lo to Hi	Group Sort	3	0
2	Profit SUM	Lo to Hi	None	...	...

b

	Region	City	Profit SUM
1	Central	Chicago	\$3,333
2		Dallas	\$3,547
3		Minneapolis	\$3,562
4		Nashville	\$3,884
5		St. Louis	\$7,627
6		Cincinnati	\$12,587
7		Louisville	\$12,664
8	East	Miami	\$2,563
9		Atlanta	\$2,865
10		New Orleans	\$4,092
11		Pittsburgh	\$6,307

**Key to Figure 4-30**

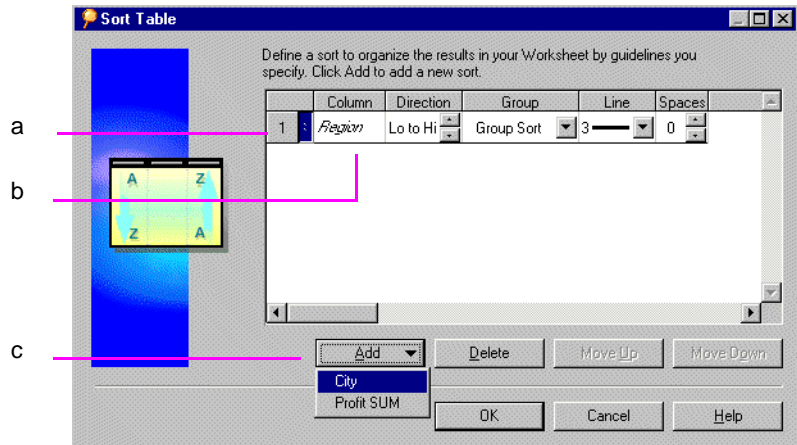
- a. A table sorted on City within Region.
- b. A table sorted on Profit SUM within Region.

To add and rearrange columns to sort:

1. On the Sort Table dialog box, click the Add button to see additional columns for sorting.

For example, in the following figure you can add the Department or Profit SUM columns for sorting.

**Figure 4–31** The Sort Table dialog



Key to [Figure 4–31](#)

- a. Column Number.
  - b. Column Name.
  - c. Add button, used to display other Items on which data can be sorted.
2. Choose the additional column.

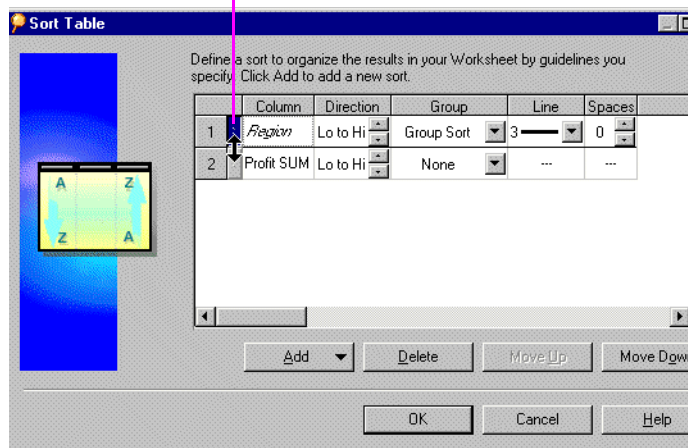
The column is added to the list of sorting columns.

**Note:** *The order of the columns on the Sort Table dialog box is important.* The order of the columns determines which data is sorted first, second, third, and so on. You can move the columns up and down to put them in the proper order on the dialog box.

If you want to move a column up or down on the list, click the column’s handle (just to the right of the column number) to select it. The pointer becomes an up/down arrow indicating you can move the selected column up or down in the order.

**Figure 4–32 Move a Sort Column**

a

Key to [Figure 4–32](#)

- a. The arrow indicates that you can move the selected sort column (Region, in this example) down, changing the sort order to Region within Profit SUM.

3. Drag the column up or down or click the move up or move down buttons.
4. When the order of the columns is correct, select options for Direction, Group, Line, and Spaces for each column ([Figure 4–29](#)), then click OK.

To remove the selected column for sorting, click the **Delete** button. Delete removes the column only from the list of sort columns. It does not remove it from the table.

#### 4.3.1.2 Group Sorting

Data in tables is often organized into groups. For example, listings by address are often grouped according to City or Zip Code; tables listing business products might group them by type, such as Office Furniture, Computers, and Supplies. One key reason to group sort data is to find subtotals for groups of numbers.

**Note:** You can group sort on tables, but not on crosstab displays.

Columns with Group Sort selected always precede those with no group sorting (None) to assure that the sorting is done correctly on the table. You cannot move a column without group sorting above a column with group sorting.

The names of group sorted columns appear in italics on the dialog box.

Here is an example of two tables, one group sorted, the other not:

**Figure 4–33 Using Group-sort**

**a**

	Region	City	Profit SUM
1	Central	Chicago	\$3,333
2	Central	Cincinnati	\$12,587
3	Central	Dallas	\$3,547
4	Central	Louisville	\$12,664
5	Central	Minneapolis	\$3,562
6	Central	Nashville	\$3,884
7	Central	St. Louis	\$7,627
8	East	Washington	\$9,048
9	East	Pittsburgh	\$6,307
10	East	Philadelphia	\$9,217
11	East	New York	\$30,678

**b**

	Region	City	Profit SUM
1	Central	Chicago	\$3,333
2		Cincinnati	\$12,587
3		Dallas	\$3,547
4		Louisville	\$12,664
5		Minneapolis	\$3,562
6		Nashville	\$3,884
7		St. Louis	\$7,627
8	East	Washington	\$9,048
9		Pittsburgh	\$6,307
10		Philadelphia	\$9,217
11		New York	\$30,678

Key to [Figure 4–33](#)

- a. A table sorted on Region with group-sorting turned on.
- b. A table sorted on Region group-sorting turned off.

The table without group sorting does not include a subtotal for groups. Ungrouped data cannot have subtotal rows because the data to total can appear anywhere in the table. See [Section 5.3, "Totaling Numeric Data"](#) for steps to add subtotals and totals to data sorted by groups.

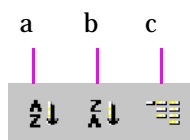
Group sorting is also pertinent when finding percentages. When you specify percentages for numbers (for example, the percentage of each region's profits of the total profits), the data is automatically group sorted for that section of data (e.g., the regions) so the percentages can be displayed properly. See [Section 5.4, "Using Percentages"](#) for more information.

The actual grouping of data is based on the design of the business area and workbook developed by your database administrator. In the previous examples, the grouping is Region and City, but it could also have been State and City or Country and City. See your database administrator if you want to group data in some other way.

### 4.3.1.3 Sorting from the Tool Bar

Three buttons on the tool bar apply the sort direction and grouping to selected columns on the table:

**Figure 4–34** *Sorting Tools*



Key to [Figure 4–34](#)

- a. Set the sort order from High to Low.
- b. Set the sort order from Low to High.
- c. Apply Group-sort.

To use the sorting tools:

1. Select the table column(s) to sort.
2. Click the tool to sort the column.

If a column is already sorted or group sorted, clicking the tool returns the data to its previous unsorted state.

## 4.3.2 Sorting Data on Crosstabs

Because the location of data on a crosstab determines the relationship of one data item to another, sorting crosstab data is different to sorting tabular data. In particular, you normally want to maintain those data relationships while rearranging the data.

The way to maintain the data relationships is to sort data on the left axis relative to a specific column on the top axis, or sort data on the top axis relative to a specific row on the left axis. The sorting tools and Sort Crosstab dialog box ([Figure 4–37](#)) automatically sort the data in that manner and maintain the data relationships.

**Note:** Some data on a crosstab layout is already sorted by default. For example, text items automatically sort alphabetically.

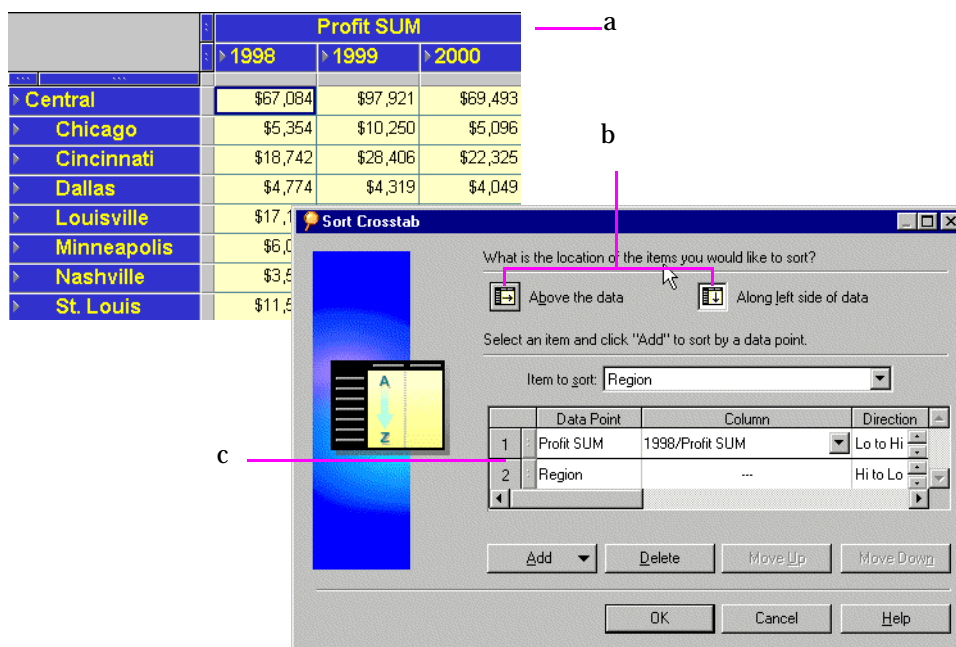
#### 4.3.2.1 Sorting Crosstabs Data from the Tool Bar

Most typical crosstab data sorts can be handled with the sorting tools on the tool bar (Figure 4-34). Sorting a crosstab with the tools on the tool bar automatically sorts all of the items on an axis.

To sort crosstab data from the tool bar:

1. Select either the column on the top axis or the row on the left axis to use for sorting.
2. Click the A-Z tool or the Z-A tool. The data on the crosstab is sorted relative to the selected column or row.

**Figure 4-35** *Sorting Example on a Crosstab*



Key to [Figure 4-35](#)

- a. A Crosstab Table.
- b. Options for choosing which axis to sort. Choose **Above the data** to sort on Items on the top axis. Choose **Along left side of data** to sort on Items on the side axis, (see note C below).
- c. The sort-options for the left axis are Profit SUM and Region.

**Note:** You can also sort on the left axis by clicking the selection handle of the item on that axis and then click one of the sorting tools on the tool bar.

### Returning a Crosstab to its Previous State

After sorting a crosstab, the data on the top axis or left axis is reordered relative to the column or row you used for sorting. To return the crosstab to its previous “unsorted” state, you must manually resort it.

In the example above (Figure 4–35), you would resort the data by the items in the left axis, Region and City. Click on the Region item’s selection box and then click the sorting tool on the tool bar to resort. Repeat with the City item. The crosstab reverts to its previous state.

#### 4.3.2.2 Sorting Across an Axis

Data on each axis is sorted by default:

- Text is sorted alphabetically from A-Z
- Numbers are sorted from lowest to highest

You can reverse the sort order by selecting the item on the axis and clicking the Sort Order tool on the tool bar.

For example, in the following figure, Regions are sorted from high to low (Z-A). To reverse this order, select the item handle as shown in the figure, then click the A-Z tool on the tool bar.

*Figure 4–36 Select an Item to Sort Down an Axis*



#### 4.3.2.3 Sorting Crosstabs Data from the Sort Crosstab Dialog Box

Although the sorting tools on the tool bar provide most of the types of sorting that you will want to do on a crosstab, the Sort Crosstab dialog box offers additional features and more control over the precise aspects of the sorting.

For example, in Figure 4–35, the Region and Cities are both sorted according to the Profit SUM amounts. By using the Sort Crosstab dialog box, you could sort only the Regions or only the Cities and thus display sort results that are more “finely tuned.”

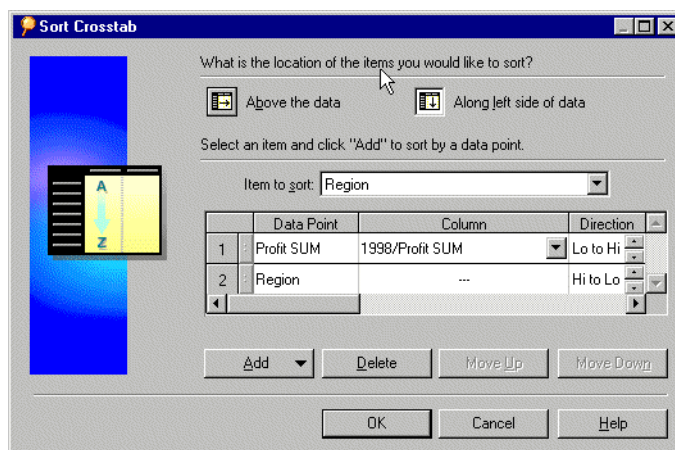
To sort data on a crosstab with the dialog box:

1. Display the crosstab with the data you want to sort.
2. Choose **Tools | Sort**.



The Sort Crosstab dialog box appears.

**Figure 4-37 Sort Crosstab Dialog Box**



3. Select the options (described below) from the dialog box and click OK to sort the data according to the selections on the dialog box.
4. Repeat the process to add other sorting to the data.

For example, after Cities are sorted in the example shown in [Figure 4-37](#), you could repeat the process and sort by Region. Being able to successively sort lets you create a crosstab that orders the data in precisely the way you want.

The Sort Crosstab dialog box includes the following options:

**Above the data**—Sorts the crosstab based on data from items on the top axis.

**Along left side of data**—Sorts the crosstab based on data from items on the left axis.

**Item to sort**—Lists the items for either the top axis or side axis depending on the selected sort location (above the data or along the left side). Click the drop-down arrow and select the item that you want to use to sort the data.

**Data Point**—The name of the item that will be rearranged as the data is sorted.

**Column/Row**—Identifies the column that contains the data for sorting when sorting based on data from the left side of the crosstab, or identifies the row that contains the data for sorting when sorting based on data from the top of the crosstab. Click the down arrow to select the specific column or row.

**Direction**—Click the up or down arrows to select the sort direction.

**Add**—Click to add a data point for sorting. (See below for more information.)

**Delete**—Select an item in the dialog box and click to remove it. You cannot delete all of the items on the left axis on a crosstab.

### **Adding a Data Point**

When you click the Add button in the Sort Crosstab dialog box, a drop-down list shows you the data points on the crosstab that can be used for sorting. For example, in the figure above, the added data point is Profit SUM. Without adding that data point to the sorting, the crosstab in the example would simply be sorted alphabetically by City down the left side of the crosstab. With the added data point, however, the cities are sorted by Profit SUM from lowest to highest. In other words, the City entry on the dialog box identifies which data you want to sort, and the added data point (Profit SUM) identifies how you want to sort the cities (by profit from lowest to highest).

Added data points must always be the first item for sorting. (City cannot be above Profit SUM in the example.) This is because sorting items by data points makes logical sense, but sorting data points by items does not.

To illustrate this concept, it makes sense to sort Cities by Profit because each City has a Profit amount associated with it. However, it does not make sense to sort Profit by City because each profit has only one city associated with it. It would be like trying to sort the profit amounts by “New Yorks” or “Phoenixes” which doesn’t make logical sense.

You can add the data point two or more times. This is useful with duplicate data points. In the example, if two cities had exactly the same amount of profit, you could specify how to sort those two duplicated pieces of data (low to high or high to low). This type of “sorting within sorting” on a crosstab is helpful for text or other data likely to have duplicate values. For financial data or other variable numeric items, however, sorting within sorting is usually not necessary.

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# Working with Discoverer Desktop

This chapter describes the basic procedures for working with Discoverer Desktop to analyze data.

The topics covered in this chapter include:

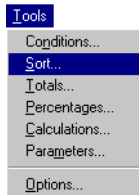
- [Section 5.1, "Using Discoverer Tools to Analyze Your Data"](#)
- A description of each analysis tool and how it's used; see the following sections for details:
  - [Section 5.2, "Finding Exceptions to Data"](#)
  - [Section 5.3, "Totaling Numeric Data"](#)
  - [Section 5.4, "Using Percentages"](#)
  - [Section 5.5, "Finding Data that Meets Conditions"](#)

## 5.1 Using Discoverer Tools to Analyze Your Data

The Discoverer Tools menu gives you a range of tools for analyzing your Discoverer data. For example, tools for creating and managing Conditions, data Sorts, Calculations etc, (see [Figure 5-1](#) below).

Workbook behaviors that you define using the tools are known as Tool Definitions. Examples of Tool Definitions are

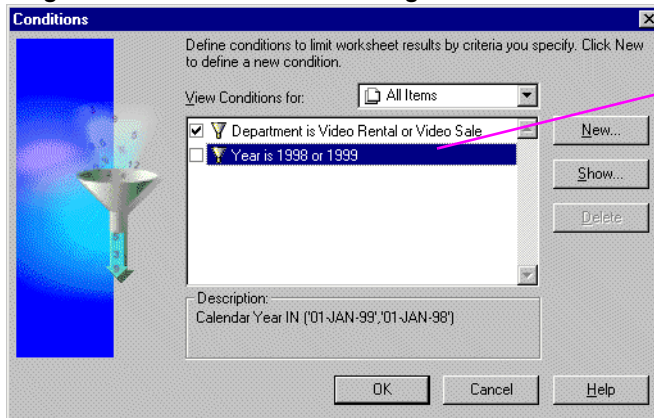
- Condition - "Department is Video Rental or Video Sales"
- Sort - Sort on Calendar Date Year, Department
- Calculation - Profit Increase = 'Profit SUM \* 1.15'

**Figure 5–1 Tools Menu**

Select an option from the Tools menu to see the definitions you have already created for the tool. You turn a tool definition on and off by adding or removing the checkmark in front of its name in the tool's dialog box.

Turning on a tool definition applies it to the data in the table or crosstab. The results are then displayed according to the specifications of the tool. For example, turning on (applying) a condition filters the data to show the precise information you want to see. Similarly, turning on a set of totals definitions with the Totals tool calculates and displays subtotals and Grand Totals in your data.

Turning off a tool definition returns the data to its original form. For example, turning off a condition re-displays the data previously filtered out by the condition, and turning off totals displays the data again without subtotals and Grand Totals.

**Figure 5–2 The Conditions Dialog Box**

**Key to Figure 5–2.**

- a. This panel shows the conditions that you have already created, or have been made available to you by your Discoverer manager. A selected check

box indicates that a Condition is active. A un-selected check box indicates that a Condition is not active.

- To turn on another tool definition, click the box in front of that definition so a checkmark appears in front of it too.
- To turn off a tool definition, click the box in front of the definition to remove the checkmark.

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**Note:** Clicking the **Delete** button removes the Condition from the Workbook. You cannot delete Items created for you by your Discoverer manager. When you select these Items, the Delete button is grayed out.

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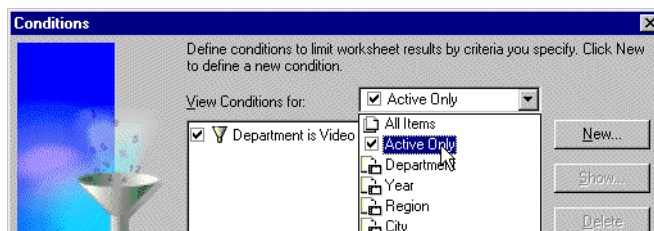


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### 5.1.1 Viewing Tool Definitions for Specific Items

When creating a tool definition, you select whether to assign it to all data items or to a single item. Use the View drop-down menu to see the definitions assigned to various items, (see [Figure 5-3](#) below).

**Figure 5-3** *Choosing which definitions to display in the Conditions dialog box*

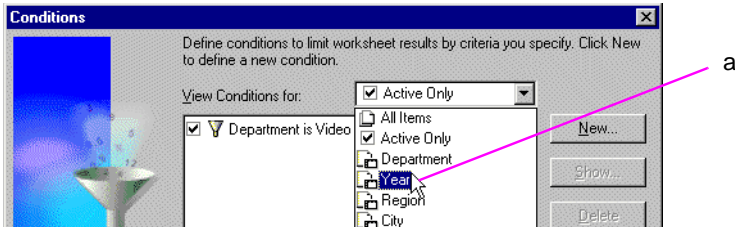


To see definitions for different items:

1. Click the down-pointing arrow in the View drop-down list.
2. Select one of the items on the list.

The list of definitions in the dialog box pertain to the selected item in the drop-down list. To see all of the definitions for the worksheet, choose **All Items**. To see only those currently turned on, choose **Active Only**.

**Figure 5–4** Choosing definitions that apply to specific Items



**Key to Figure 5–4.**

- a. Here, only conditions that apply to the Year Item will be displayed.

## 5.1.2 Creating New Tool Definitions

Each tool has its own features, but the initial process to create a new definition is similar.

To create a new definition:

1. Choose a tool from its **menu**.

The tool's dialog box appears.

2. Click the **New** button.

A dialog box appears for creating a new definition for that tool.

Each New dialog box is different. See the descriptions in the rest of this chapter for details on how to create a new definition for each tool.

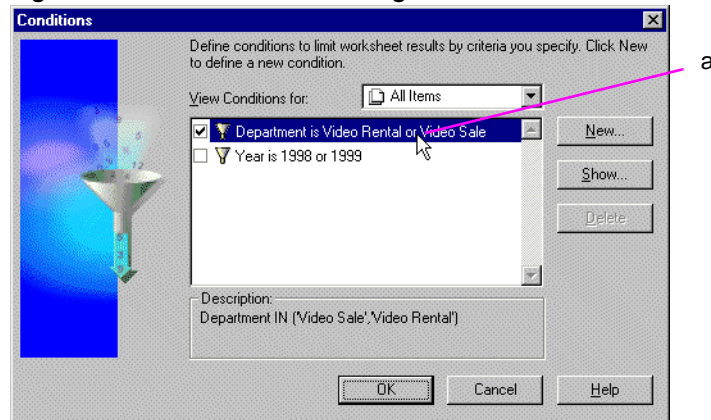
## 5.1.3 Editing Existing Tool Definitions

To edit a tool definition, you must select it first on the list of definitions:

1. Select a tool from its **menu**.

The tool's dialog box appears.

2. Select a definition from the list.

**Figure 5-5 The Conditions Dialog Box****Key to Figure 5-5.**

- a. In this example, the Condition 'Department is Video Rental or Video Sale' is selected.
3. Click the **Edit** (or **Show**) button.

A dialog box appears for editing the definition.

Each dialog box for editing a definition is different. See the descriptions in the rest of this chapter to see how to edit definitions for each tool.

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Editing a definition does not automatically apply it to the data. The box in front of the definition must have a checkmark in it in order to be applied to the data.

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### 5.1.4 Deleting Tool Definitions

Although you can delete definitions, you may want to simply turn them off instead. Then, if you need a definition later, you can just turn it back on. Deleted definitions are erased permanently. If you delete a definition and want to reuse it later, you will have to re-create that definition from the beginning.

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**NOTE:** You cannot remove Items created for you by your Discoverer manager.

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To delete an existing tool definition:

1. Select a tool from its **menu**.

The tool's dialog box appears.

2. Click the definition in the list of definitions.
3. Click the **Delete** button.

The definition is deleted and removed from the list of definitions.

## 5.2 Finding Exceptions to Data

A typical analysis task is to find numerical data that meets or exceeds a particular amount (that is, data that is an *Exception* to the rest of the data). For example, you may want to find all the stores in your nationwide chain that have profits in excess of \$10,000 for the year.

Finding Exceptions to the data involves two steps:

- Defining the Exception itself, such as “is greater than 10,000” or “is less than 25%” or “is between 10,000 and 50,000”.
- Defining the format of the Exception data so you can see it easily among the rest of the data.

Use the Exception dialog box for both steps. [Figure 5-6](#) shows an example.



**Figure 5-6** Applying Exception analysis to Worksheets

a

Region	Department	Profit SUM
Central	Video Renta	\$25,157
	Video Sale	\$69,493
East	Video Renta	\$40,402
	Video Sale	\$109,637
West	Video Renta	\$23,521
	Video Sale	\$52,092

b

Define an exception to highlight data in your Worksheet using fonts, colors, and styles. You can define Exceptions for single values or ranges of values.

View Exceptions for:  All Items

Profit SUM >= 60000

Description: Profit SUM >= 60000

OK Cancel Help

**Key to Figure 5-6.**

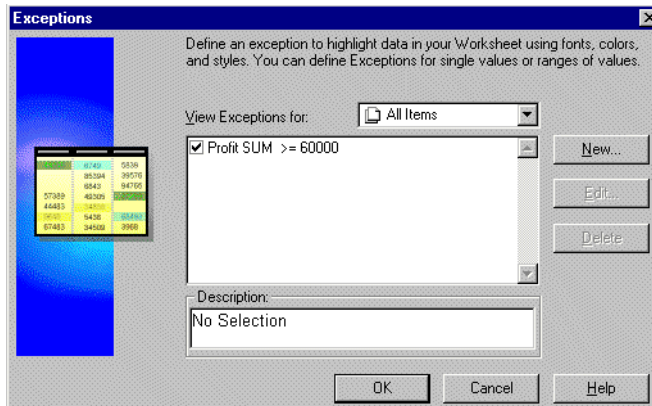
- The selected Exception format is applied to data in the Worksheet.
- This Exception colors the cell green where the Item Profit SUM has a value greater or equal than \$60,000.

To turn on an Exception:

1. Choose **Format | Exceptions**.

The Exceptions dialog box appears. It shows the Exceptions you have already defined.

**Figure 5-7 Exceptions Dialog Box**



2. Click the check box in front of the Exception definition. A checkmark appears in the check box to indicate that it is selected.

In the example above, the Exception “Profit SUM >= 60000” is turned on.

3. Click OK.

Discover now analyzes the data, finds the Exception data, and displays it according to the format of the Exception’s definition.

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You can create many Exceptions concerning the same data items. However, the Exceptions must not conflict.

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To turn off an Exception:

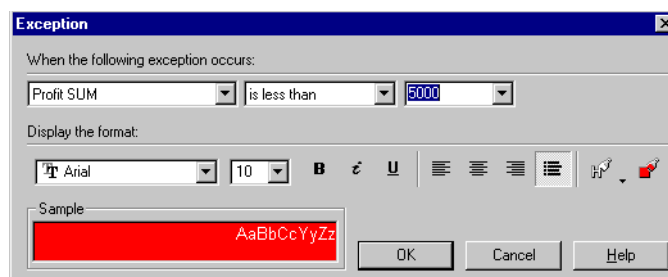
1. Choose **Format | Exceptions**.  
The Exceptions dialog box appears.
2. Click the Exception's box to remove the checkmark.
3. Click OK. The Exception is turned off and removed from the analysis.

## 5.2.1 Creating a New Exception

To create a new Exception:

1. Choose **Format | Exceptions**.  
The Exceptions dialog box appears.
2. Click the New button.  
The Exception dialog box for a new Exception appears:

**Figure 5–8** Exception Dialog Box

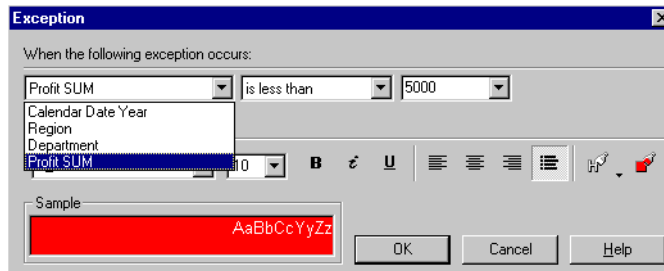


Creating a new Exception has two parts: defining the Exception and defining its format. The top portion of the dialog box is for defining the Exception; the bottom part is for the formatting.

To create the Exception definition:

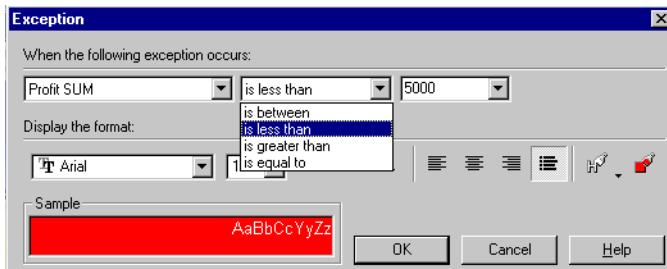
1. Click the leftmost drop-down button to see a list of data items.

**Figure 5–9 Select the Exception Item**



2. Choose the data item for which you want to find the Exception.
3. Click the drop-down button for the Exception expression, such as “is between” or “is greater than,” and choose the one you want.

**Figure 5–10 Select the Exception Expression**

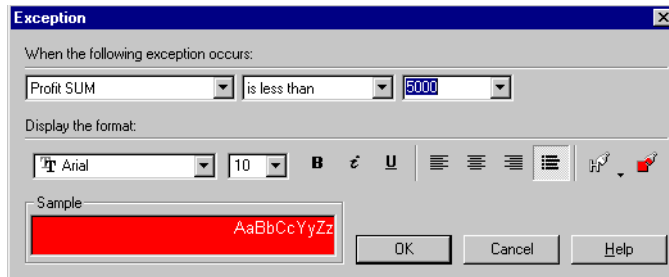


The following table shows some examples of the types of expressions you can define for Exceptions.

<b>You want to find...</b>	<b>Use this expression...</b>	<b>Comments</b>
Amounts over a certain value	“is greater than” <value> For example “is greater than” 10,000	The “is greater than” Exception finds data equal to or greater than the value. In this example, values equal to or greater than 10,000 will be highlighted.
Text that follows other text alphabetically	“is greater than” <text> For example “is greater than” New York finds New York and all the names alphabetically after it	The text can be any word or text item.
Amounts under a certain value	“is less than” <value> For example “is less than” 10,000	The “is less than” Exception finds data equal to or less than the value. In this example, a values equal to or less than 10,000 will be highlighted.
Text that precedes other text alphabetically	“is less than” <text> For example “is less than” New York finds New York and all the names that alphabetically precede it	The name can be any word or text item.
Amounts between two values (either text or numeric)	“is between” <lower value> and <upper value> For example, numbers between 5000 and 10,000, or text between Jones and Smith, or Zip Codes between 95000 and 96000	The “is between” Exception finds data equal to or greater than the lower value and equal to or less than the upper value. Data between the two values will be highlighted. Applies to both text and numeric items. For example, Zip Codes from 95000 through 96000 will be highlighted.  To find all text alphabetically in a range, such as all the names starting with the letter C, enter <i>Ca</i> as the lower value and <i>Cz</i> as the upper value.
Amount or name that matches	“is equal to” <value> For example “is equal to” New York finds all data with New York as the name	The value can be a numeric or text item. The value and data must match exactly.

4. Type the number or text for the Exception in the box(es) at the right of the Exception dialog box. For the expression “is between” two boxes appear for the low *and* high values.

**Figure 5–11 Enter the Exception Value(s)**



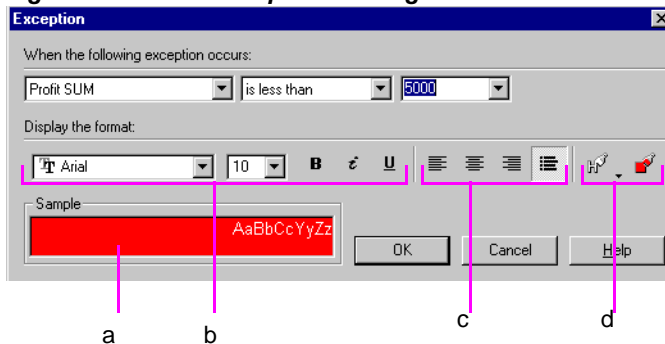
If you select a data item with discrete values, such as Region, and then select the expression “is equal to” you don’t have to type in the value. Simply click the drop-down button on the third box to see the list of values for that item.

For example, in the sample Vidstore workbook, the three values for Region are Central, East, and West. Selecting “Region is equal to” and then clicking the drop-down button displays Central, East, and West as the choices.

To format the Exception:

1. Select the display options for the Exception from the bottom half of the dialog box.

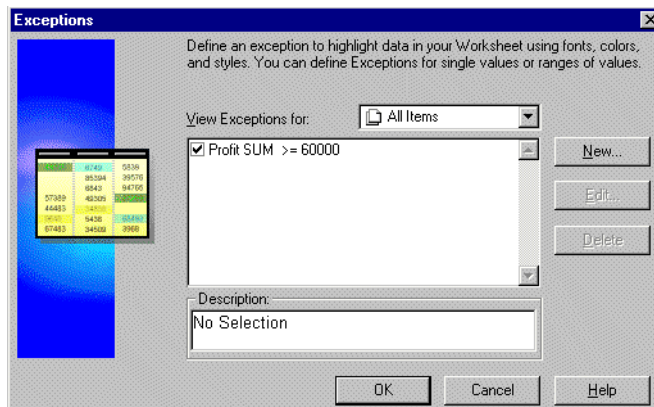
**Figure 5–12 The Exceptions Dialog Box**



**Key to Figure 5–12.**

- a. The Sample box shows what the Worksheet text will look like.
  - b. Options for setting the text font, size, and style.
  - c. Options for setting the text alignment.
  - d. Options for setting text color and background color.
2. Click OK.  
The Exceptions dialog box reappears with your new Exception listed in it. Remember to click the box in front of the Exception to turn it on and click OK to apply it to the data.

**Figure 5–13 A New Exception**

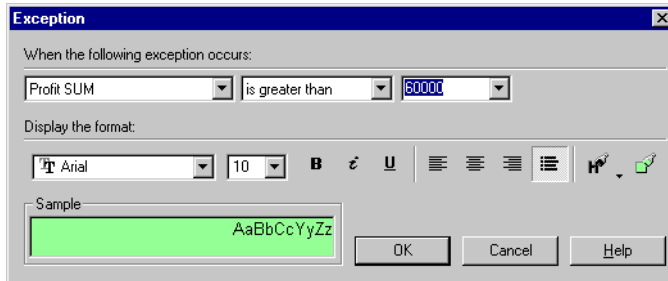


## 5.2.2 Editing an Exception

To edit an Exception:

1. Select the Exception on the Exceptions dialog box.

**Figure 5–14** Select an Exception to Edit



In this example, the Exception “Profit SUM greater than 60000” is selected. The Description at the bottom of the box shows the current Exception and its format.

2. Click the Edit button. The Exception dialog box appears (Figure 5–8).
3. Make the changes to the Exception as required.
4. Click OK to save any changes.

If you now want to apply the edited Exception to your data items, make sure it is turned on (the check box in front of the Exception is selected) and click OK.

## 5.3 Totaling Numeric Data

When working with numeric items, you often want to see various types of summations of the data. Using the Totals tool you can sum rows and columns of numbers, find averages and standard deviation, compute subtotals and Grand Totals, and so on. The Totals tool automatically places the summations at the appropriate positions on the display.

Here are some examples:



**Figure 5–15 A Crosstab Total on Worksheet Rows**

	Profit SUM		
	> 1998	> 1999	> 2000
> Central	\$67,084	\$97,921	\$69,493
> East	\$108,558	\$145,462	\$109,637
> West	\$57,096	\$87,172	\$52,092

a

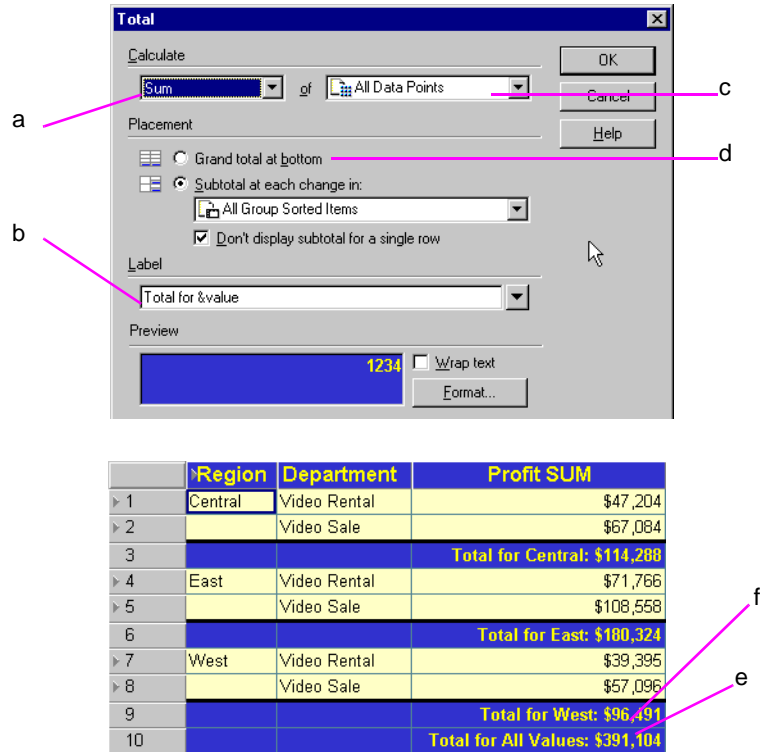
	Profit SUM			
	> 1998	> 1999	> 2000	Sum
> Central	\$67,084	\$97,921	\$69,493	\$234,498
> East	\$108,558	\$145,462	\$109,637	\$363,657
> West	\$57,096	\$87,172	\$52,092	\$196,360

b

**Key to Figure 5–15.**

- a. An ordinary Crosstab Worksheet.
- b. The same Crosstab Worksheet with a Total on rows, which calculates a grand total for each Region (Central, East, and West) for 1998, 1999, and 2000.

Figure 5–16 A Worksheet with Totals on Columns



**Key to Figure 5–16.**

- a. The value to be calculated. Other choices include Average, Count, etc.
- b. The Item Label displayed on the Worksheet
- c. The Item on which the calculation is performed.
- d. The Total is calculated as a Grand Total of all values. Alternatively, the Total could be calculated as a Sub-total.
- e. The Grand Total as it is displayed on the Worksheet.
- f. The Worksheet also has a Total Sub-grouped on each change in Region, which gives individual Totals for each Region, (see Note d.).

**Figure 5–17 Multiple Totals on a Crosstab**

Define a total to summarize your results using functions such as Sum, Average, Count, Minimum, Maximum, Standard Deviation, and Variance. Click New to define a new total.

View Totals for:

All Items Sum for Profit SUM

All Items Sum for Sales SUM

New... Edit...

	Profit SUM	Sales SUM
Central	\$234,498	\$342,361
Q1	\$70,828	\$103,773
Q2	\$75,368	\$109,688
Q3	\$43,234	\$63,345
Q4	\$45,068	\$65,554
	Sum: \$234,498	Sum: \$342,361

**Key to Figure 5–17.**

- a. Two Totals are active. **All Items SUM for Profit SUM** sums the Profit SUM column. **All Items SUM for Sales SUM** sums the Profit Sales column.
- b. The **All Items SUM for Profit SUM** Item on the Crosstab Worksheet.
- c. The **All Items SUM for Sales SUM** Item on the Crosstab Worksheet.

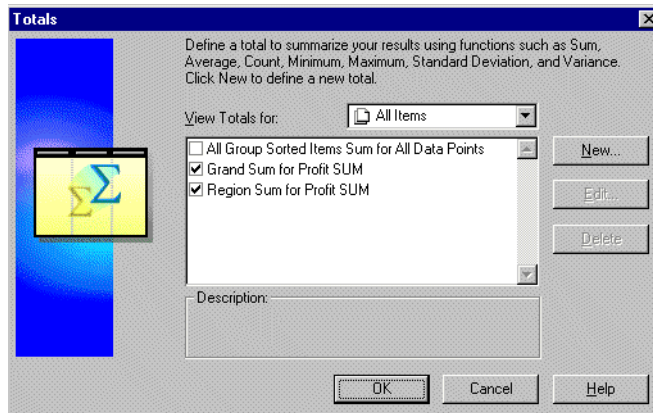
Notice that the two Totals are displayed on the same row. When a crosstab has multiple Totals active, Discoverer puts them on the same row.

To display totals or subtotals on a table or crosstab:

1. Choose **Tools | Totals**.

The Totals dialog box appears. It shows any totals you've already defined.

**Figure 5–18 Totals Dialog Box**



2. Click the box in front of the Total definition so a checkmark appears.
3. Click OK. Discover now computes the totals and displays them on the table or crosstab.

To remove the totals from the data:

1. Choose **Tools | Totals**.

The Totals dialog box appears.

2. Click the checkmark box(es) to remove the checkmark.
3. Click OK. The totals are removed from the table or crosstab.

### 5.3.1 Creating a New Totals Definition

Creating a new totals definition has four basic steps:

- Selecting the totals to calculate.
- Selecting the type of total and where to place it on the table or crosstab.
- Creating a label for the totals column or row.
- Defining the format for the totals column or row.

To create a new totals definition:

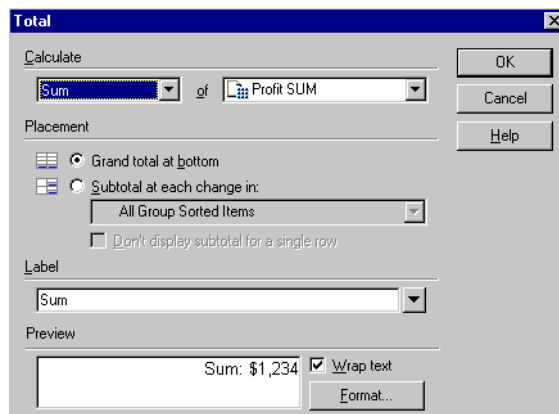
1. Choose **Tools | Totals**.

The Totals dialog box appears (Figure 5–18).

2. Click the **New** button.

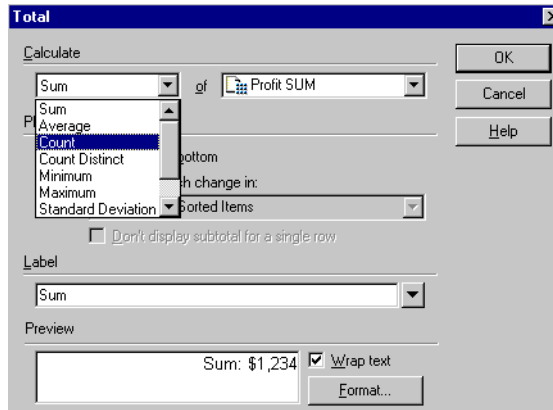
The Total dialog box for a new totals appears.

**Figure 5–19 Total Dialog Box**



3. Click the leftmost drop-down button to see the list of totals.

**Figure 5–20 Select the Totals to Calculate**

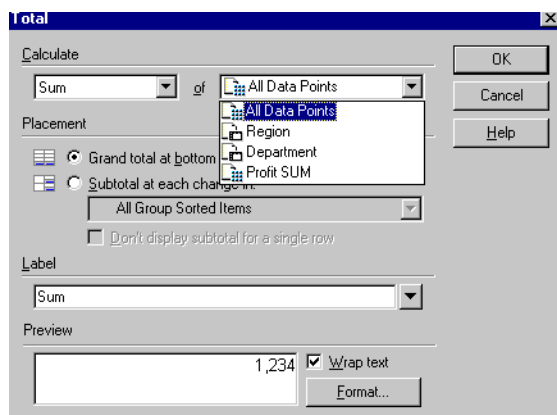


4. From the drop-down list, choose the type of total for the data.

Option	Description
Sum	Adds all the values.
Average	Adds all the values and divides by the number of values.
Count	Counts the total number of values.
Count Distinct	Counts the number of unique values.
Minimum	Finds the lowest value.
Maximum	Finds the highest value.
Standard Deviation	Calculates the standard deviation. (Standard deviation is the square root of the variance of the values.)
Variance	Calculates the variance. (Variance is the sum of the squares of the differences between each value and the arithmetic mean divided by the number of values.)
Percentage of Grand Total	Calculates the Grand Total of the row or column, then finds the percentage of the current column or row of the Grand Total.

5. Click the drop-down button to select the data points to be totaled.

**Figure 5–21** *Select the Data Points to Total*



**All Data Points**— displays totals for each set of appropriate data points. For example, if the table contains two columns of numeric data points, both columns display totals. However, data points not appropriate for the type of total are not displayed.

In the example above, Region is a set of data points, but summing Region data points doesn't make sense—it would be like trying to add “Central” to “East”. In this case, Regions are not summed even though you selected All Data Points.

**A specific numeric data point (such as Profit SUM in the example)**—displays totals for the selected set of data points.

**A non-numeric data point (such as Region in the example)**—when you select a non-numeric set of data points, the options for the totals in the first drop-down list are limited to only those options that apply to non-numeric data points. For example, if you select Region, sum of regions does not make sense. The only totals that make sense for non-numeric data points are Count, Count Distinct, Maximum, and Minimum.

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**NOTE:** If you choose the **All Data Points** option when your Worksheet contains Calculations, the Calculation is applied to the Totals. Discoverer does not total the Calculations, (see [Section 5.3.2, "Totals and Calculations"](#)).

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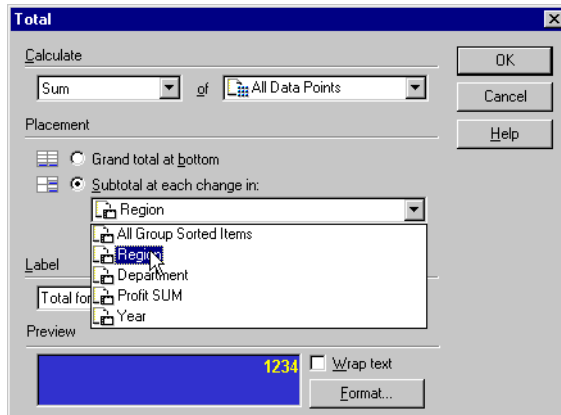
- Click one of the options for Placement of the totals data:

**Grand total at bottom**—Calculates the Grand Total for a column and places it after the last row of the table or crosstab.

**Grand total at right**—Calculates the Grand Total for a row and places it to the right of the last column in the crosstab. (This option is only available from the Total dialog box for crosstabs.)

**Subtotal at each change in**—Calculates the subtotals for a column and places it at each new value for the selected item. Select the item from the drop-down list. For example, the subtotals for Regions appear at the end of the data for each Region.

**Figure 5–22** Select a Subtotal Placement

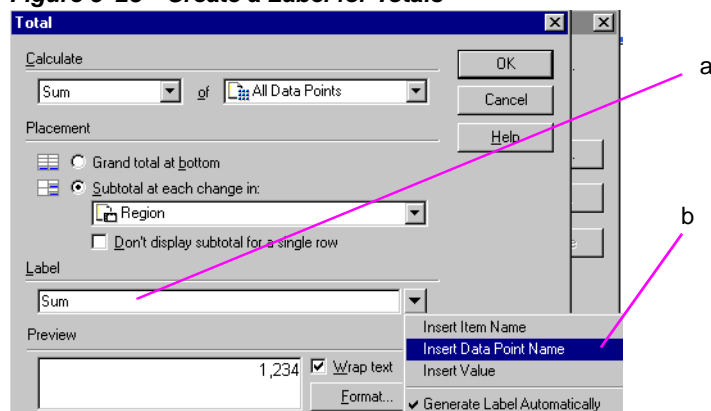


- Now enter a Label for the totals data.

You can click the drop-down menu for labels and choose additional options for the title from it.



**Figure 5–23 Create a Label for Totals**



**Key to Figure 5–23.**

- a. Click here and type a Label.
- b. You can also select from this drop-down list to add various system values to the label.

The system values from the drop-down list produce labels that can change as the data changes by adding text codes (such as “&Item” and “&Value”) to the label when you insert them in the label text. In the actual labels on the table or crosstab, the ampersand (&) will not appear, and appropriate names from the table or crosstab will be inserted in place of the words “Item” or “Value”.

This table shows some examples.

Option	Example	Sample label(s)
Insert Item Name	Latest Data from &Item	Latest Data from Region
Insert Data Point Name	Top Performers of &Data	Top Performers of Profit Sum
Insert Value	Total Income for &Value	Total Income for Central
Generate Label Automatically	Sum	Sum; automatic label is the name of the type of calculation (e.g., Sum, Count, Standard Deviation)

If the total calculates for all data points (as selected at the top of the dialog box), the labels can appear for each appropriate name. For example, when totaling two items,

and you select Insert Item Name (&Name), labels for both item names appear in the data or crosstab.

To remove options from the labels, click in the label text on the dialog box and edit it as you would regular text.

1. Click Wrap Text if you think the label will be too long for the column where it will appear.
2. Click the Format button to format the Totals data. The Format dialog box appears.
3. Click OK.

You'll now see the Totals dialog box again with your new total definition listed in it.

### 5.3.2 Totals and Calculations

When creating your Totals, if you total a Calculation, the Calculation is applied to the Total. Discoverer does not total the Calculations.

For example, in [Figure 5-24](#), the Profit Item is a Calculation: **Sales SUM / Cost SUM**. The Sum value for Profits is \$3.23, (\$1,150,603 / 356,087). The SUM value is NOT \$9.70, (\$3.20 + \$3.23 + \$3.27).

**Figure 5-24 A Worksheet Total on a Calculation (Profits)**

> Year	Sales SUM	Cost SUM	Profits
1998	\$338,622	\$105,885	\$3.20
1999	\$478,838	\$148,282	\$3.23
2000	\$333,143	\$101,921	\$3.27
Sum	\$1,150,603	\$356,087	\$3.23

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**NOTE:** If you want Discoverer to total Calculations rather than apply the Calculations to Totals, contact your Discoverer manager.

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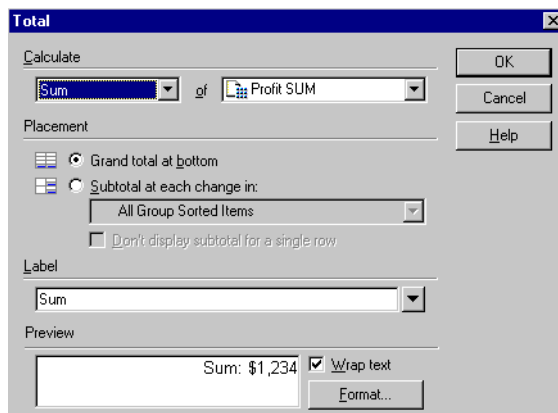
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### 5.3.3 Editing a Totals Definition

To edit a totals definition:

1. Select the definition you want to edit on the Totals dialog box.
2. Click the Edit button. The Total dialog box appears (Figure 5-25).

**Figure 5-25 Total Dialog Box**



3. Make the changes you want.
4. Click OK. The totals definition is now edited.

## 5.4 Using Percentages

A typical data analysis task is to calculate Item percentages. To calculate percentages in Discoverer, use the **Percentages** option on the **Tools** menu.

Due to rounding of data, percentages may not add up exactly to 100. The amount of rounding depends on the number of decimal places that you specify for data. Use the Format Data dialog box to set the number of decimal places for your data.

**Figure 5–26 Using Percentages on a Crosstab Worksheet**

	> 2000	
	Profit SUM	Percentage of Annual
> Central	\$25,157	28%
> East	\$40,402	45%
> West	\$23,521	26%

**Percentages**

You can calculate a percentage based on any item to further analyze your data.

View Percentages for:

Percentage of Annual

**Percentage**

Calculate percentages for:

Calculate as a percentage of:

Grand total of all values  Grand total for each column  Grand total for each row  Each change in:

Column heading:

Display grand total and grand total percentage

Label:

**Key to Figure 5–26.**

- On the Worksheet you can see the Percentage Item Percentage of Annual, which shows the Profit SUM as a percentage of annual profits.
- The Percentage dialog box used to define and edit Percentages.
- The Item on which the Percentage is calculated.

- d. 'Grand Total for each column' calculates the value as a percentage of the annual total.
- e. The name of the Item as it appears on the Worksheet.

### 5.4.1 Using the Percentages Tool

To find a percentage with the Percentages tool on the tool bar:

1. Select the column containing the data that you want to use to find percentages.
2. Click the Percentages tool on the tool bar.

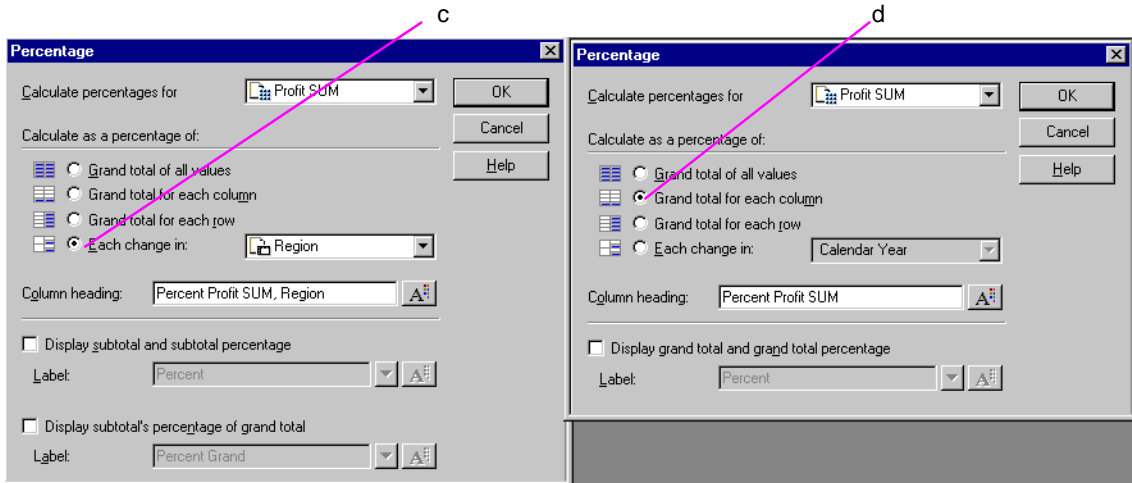
The percentage column shows the percentage of each row to the total of all the rows displayed on the table or crosstab.

Here are examples of percentages on a Crosstab Worksheet:

**Figure 5–27 A Percentages example on a Crosstab Worksheet**

Page Items: Department: Video Rental ▾

	> 2000		
	Profit SUM	Percent Profit SUM, Region	Percent Profit SUM
Central	\$25,157	100%	28%
Chicago	\$1,914	8%	2%
Cincinnati	\$7,153	28%	8%
Dallas	\$1,728	7%	2%
Louisville	\$7,099	28%	8%
Minneapolis	\$1,904	8%	2%
Nashville	\$1,329	5%	1%
St. Louis	\$4,030	16%	5%



**Key to Figure 5–27.**

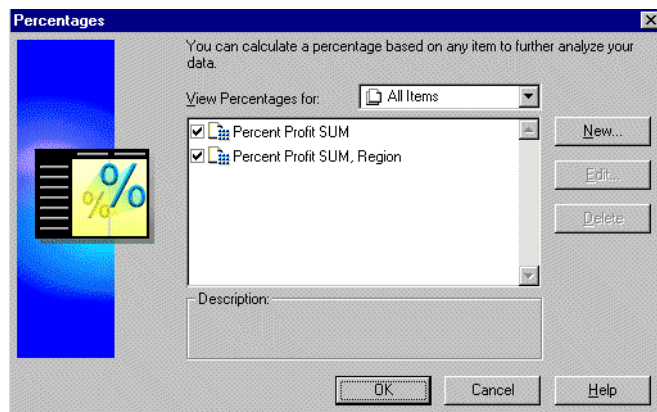
- a. Percentage SUM Profit, Region calculates profit for each row (in this case City) as a percentage of the Region total, (see note c).
- b. Percentage SUM Profit calculates profit for each row (in this case City) as a percentage of the annual total for the year 2000.
- c. The Percentage dialog box for the item Percentage SUM Profit, Region, showing how the value is calculated as a percentage of the Region total.
- d. The Percentage dialog box for the item Percentage SUM Profit, showing how the value is calculated as a percentage of the annual total.

To display percentages on a table or crosstab:

1. Choose **Tools | Percentages**.

The Percentages dialog box appears. It shows the percentages you've already defined.

**Figure 5–28 Percentages Dialog Box**



2. Click the box in front of a percentage definition so a checkmark appears.

3. Click OK.

Discoverer now computes the percentages and displays them on the table or crosstab.

To remove the percentages from the data:

1. Choose **Tools | Percentages**.

The Percentages dialog box appears.

2. Click the checkmark box(es) to remove the checkmark.

3. Click OK to remove the percentages from the data.

## 5.4.2 Creating a New Percentages Definition

Creating a new percentage definition has four basic steps:

- Selecting the data item for calculating the percentage.
- Selecting to calculate the percentage of a total or change in values.
- Creating a label for the percentage column.
- Defining the format for the column.

To create a new percentage definition:

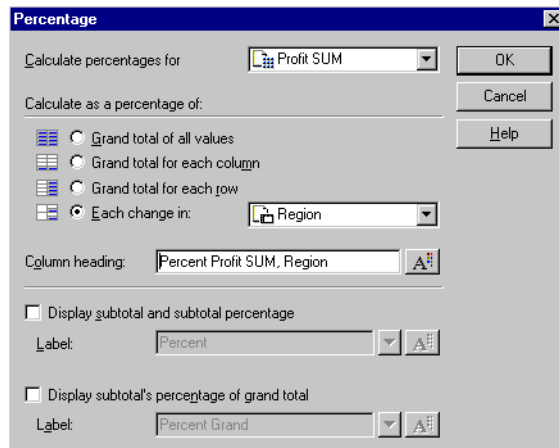
1. Choose **Tools | Percentages**.

The Percentages dialog box appears (Figure 5–28).

2. Click the **New** button.

The Percentage dialog box for a new definition appears:

**Figure 5–29 Percentage Dialog Box**



3. On the Percentage dialog box, click the drop-down button at the top of the box to see the list of data items for which to calculate percentages.
4. Select the data item from the list to use to calculate percentages.

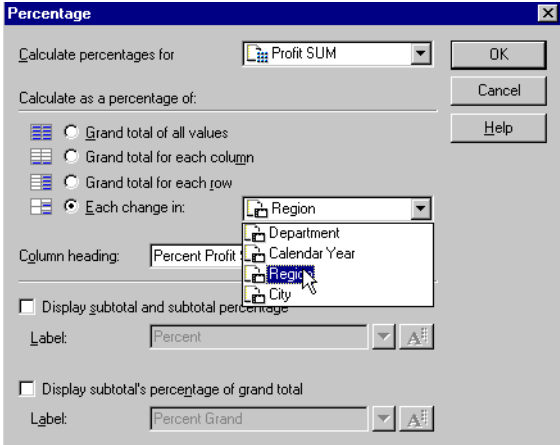


5. Select one of the options to calculate a percentage of. If you select the option **Each Change in**, select the data item where you want the percentage to be displayed when the value changes.

The following table lists your choices:

Option	Description
Grand total	Calculates the percentage of the Grand Total for each column. this option is only available from the Percentages dialog box for tables.
Grand total of all values	Calculates the percentage of the Grand Total for all the columns.
Grand total for each column	Calculates the percentage of the Grand Total for each column.
Grand total for each row	Calculates the percentage of the Grand Total for each row.
Each change in	Calculates the percentage places it at each new value for the selected item. Select the item from the drop-down menu.

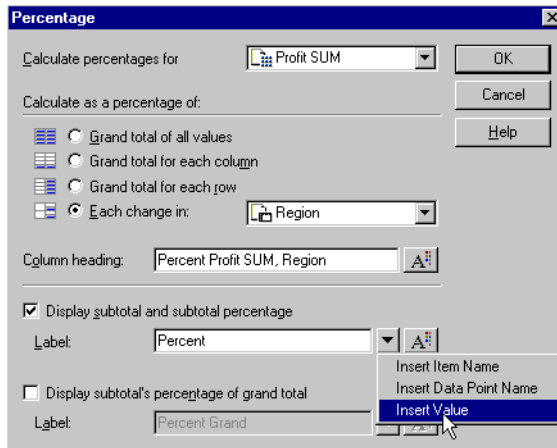
**Figure 5–30** Select Data for Percentages



6. Enter a column heading for the percentages column.
7. Click the check boxes at the bottom of the dialog box to display subtotals and their percentages, or subtotals as a percentage of the Grand Total.

- Enter labels for the subtotal and Grand Total percentages, or click the drop-down menus for labels and choose additional options.

**Figure 5–31 Create Labels for Percentage Columns**



The options from the drop-down menu produce labels that can change as the data changes by adding text codes such as “&Item” and “&Value” where you insert them in the label text. In the actual labels on the table or crosstab, the ampersand (&) will not appear, and appropriate names from the table or crosstab will be inserted in place of the words “Item” or “Value”.

The table below shows some examples.

Option	Example	Sample label(s)
Insert Item Name	Percent of Profit from &Item	Percent of Profit from Region
Insert Data Point Name	Top Performers of &Data	Top Performers of Profit Sum
Insert Value	Yearly Percent for &Value	Yearly Percent for Central

To remove options from the labels, click in the label text on the dialog box and edit it as you would regular text.

9. Click the Format button next to the different label definitions to format the percentages. The Format dialog box appears.
10. Click OK to return to the Percentages dialog box with the new definition.

### 5.4.3 Editing a Percentage Definition

To edit a percentage definition:

1. Select the definition you want to edit on the Percentages dialog box.
2. Click the Edit button. The Percentage dialog box appears.
3. Make the changes you want.
4. Click OK. The percentage definition is now edited.

## 5.5 Finding Data that Meets Conditions

A typical data analysis task is to filter the data to find only that data that meets certain conditions. For example, you might want to limit the display of data to the last two years of sales. Or, you want to see the data for only two types of sales items. Each of these tasks involves filtering the data to find the specific data that meets the conditions.

Some sample conditions are:

- Year = 1998 or 1999—The displayed data applies to 1998 and 1999 only. The workbook may contain data from other years, but it will not be displayed.
- Profit SUM > 3000—The worksheet displays Profit SUMs greater than 3000.
- City <> 'Boston'—The worksheet displays data for all cities, except Boston. Note that the value Boston is enclosed in single quotes. Text values in conditional expressions must be in single quotes.

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Several features for creating conditions involve advanced analysis techniques. For example, instead of creating a condition for a defined data element, you can specify a condition based on a calculated value that computes which data can meet the condition. The advanced features are covered in [Chapter 8, "Advanced Discoverer Desktop Features"](#).

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Conditions can be similar to Exceptions. The differences between conditions and Exceptions, however, are significant.

- An Exception finds data that meets the Exception definition and highlights it in the tables and crosstabs. All other data remains visible.
- A condition finds data that meets the condition and *removes* the rest of the data from the display so you see only the data that meets the conditions.

Conditions are essentially powerful data filters that find the specific data you're looking for and displays only that data. You can define numerous conditions and turn them on and off to filter the data in the tables and crosstabs.

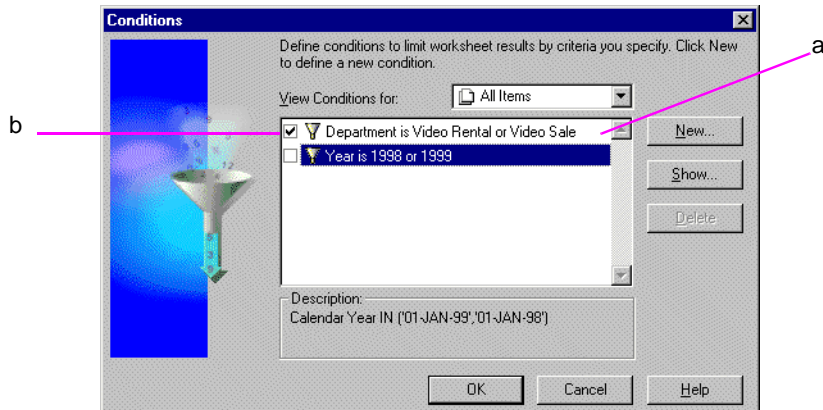
**Note:** Applying a condition to a table or crosstab does not remove the data from the workbook. It merely filters the data to show the precise data you want to see. To return the rest of the data to the table or crosstab, turn off the condition.

To find data that meets certain conditions:

1. Choose **Tools | Conditions**.

The Conditions dialog box appears.

**Figure 5–32 Conditions Dialog Box**



**Key to Figure 5–32.**

- a. These are the conditions that you have already defined, or have been made available to you by your Discoverer manager.
  - b. Selected check boxes in front of a condition definition indicate that the condition is active and is being applied to the data already.
2. To find data that meets a condition, click the box in front of the condition definition so a checkmark appears. That turns on the condition.

In the example above, the condition “Department is Video Rental or Video Sale” is turned on (checked).

3. Click OK. Discover now filters the data, finds the data that meets the condition, and displays it.

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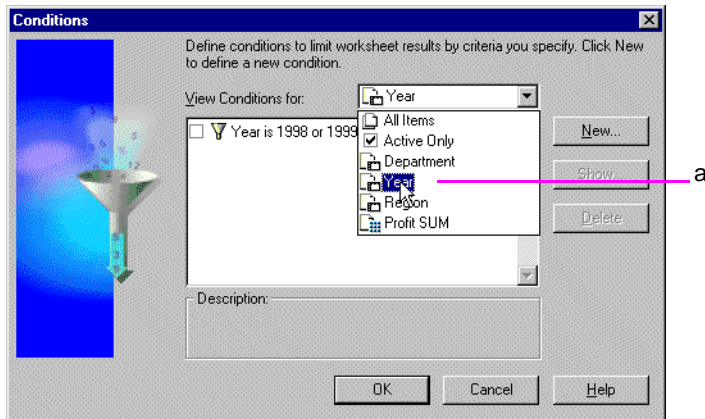
If you select two (or more) conditions that conflict, a warning appears. For example, the two conditions “Year = 2000” and “Year = 1998 or 1999” applied to the same layout conflict, because the first condition removes all years except 2000 and the second condition tries to display 1998 and 1999 at the same time.

---

To see conditions for specific data items:

1. At the Conditions dialog box, choose an item from the drop-down list, **View Conditions For**. You can display all the conditions defined in a workbook, or only those that apply to particular data items.
  - To see conditions that apply to a specific data item, click the drop-down button and select a data item to see its conditions.
  - To see all of the conditions defined for the workbook, choose **All Items**.
  - To see only those conditions currently turned on, choose **Active Only**.

**Figure 5–33 View Conditions for a Specific Data Item**



**Key to Figure 5–33.**

- a. Choose a data item to see its conditions.

To remove the condition from the data:

1. Choose **Tools | Conditions**.  
The Conditions dialog box appears (Figure 5–32).
2. Click in the box next to the condition to remove the checkmark.

Do not click the **Delete** button. That deletes the condition definition from the list of conditions.

3. Click OK. The condition is removed from the data.

Now, the data is restored to the table or crosstab, because the data is not being filtered. That is, the condition is turned off.

## 5.5.1 Creating Conditions

To create a new condition:

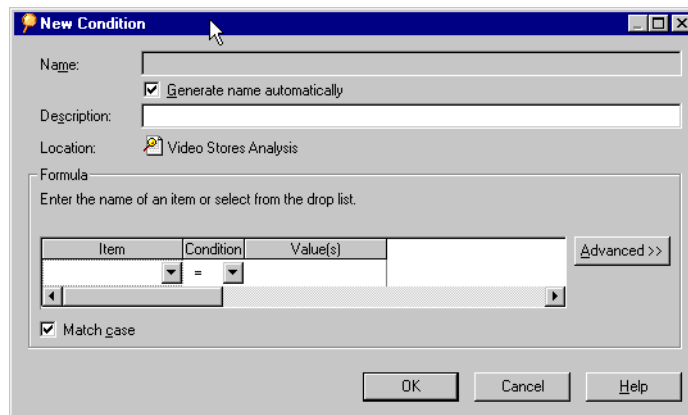
1. Choose **Tools | Conditions**.

The Conditions dialog box appears.

2. Click the **New** button.

The New Condition dialog box appears:

**Figure 5–34** *New Condition Dialog Box*



**Name**—automatically generates a name for the condition based on the item, the condition, and the values that you select for it. To create a different name, click the box **Generate name automatically** to remove the checkmark. You can then enter a name for the condition in the Name box.

**Description**—For simple, straightforward conditions, the name and description are usually sufficient to explain how the condition will filter the data, and you

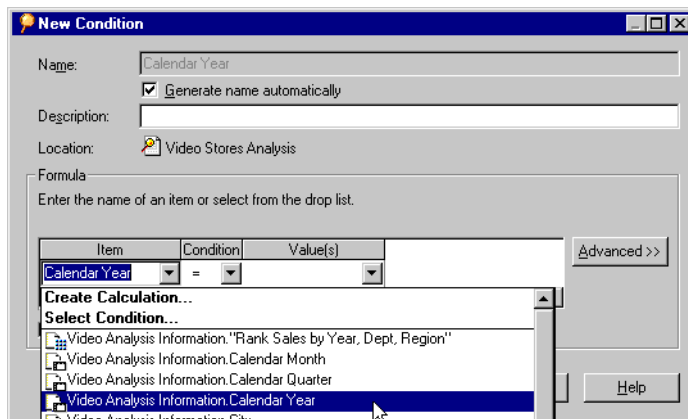
don't need to type an extra description. However, advanced conditions may need descriptions for clarity. Enter a description here and it appears on the Conditions dialog box when the condition is selected.

**Location**—The workbook where the condition will be applied.

3. Click the drop-down button for **Item**.

The drop-down list shows the data items in the workbook that you can use for the condition. It also lists **Create Calculation** and **Select Condition**, which are some other ways to create the first part of the condition.

**Figure 5–35** Select the Condition Item



**Create Calculation**—You can use a calculation to filter the data (see [Chapter 8, "Advanced Discoverer Desktop Features"](#)).

**Select Condition**—Creates conditions that use other conditions to filter the data first (see [Chapter 8, "Advanced Discoverer Desktop Features"](#)).

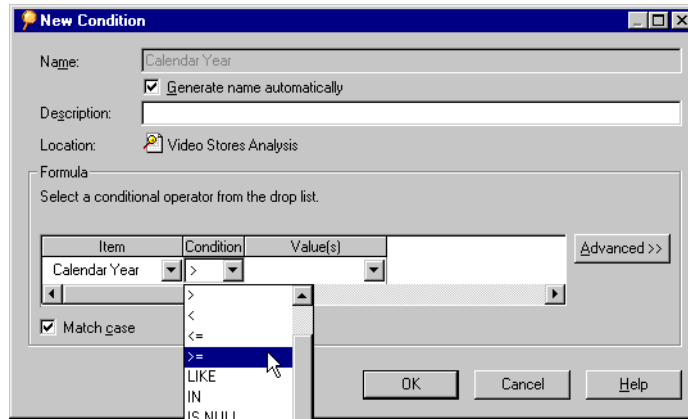
Notice that the list of items contains all the data items in the workbook, not just those being displayed on the current table or crosstab. You can use any data item to create a condition.

4. Choose the data item to use for filtering the data.



- Click the drop-down button for the condition expression and choose the one you want. See the table below for descriptions and examples of the expressions.

**Figure 5–36** Select the Condition Expression



- To complete the definition of the condition enter a value in the **Value(s)** box.

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When you create a condition with text for the value, the text must be enclosed in single quotes. For example, in the condition Region = 'Central', the text value, 'Central', must be enclosed in single quotes. Numbers do not have to be in quotes.

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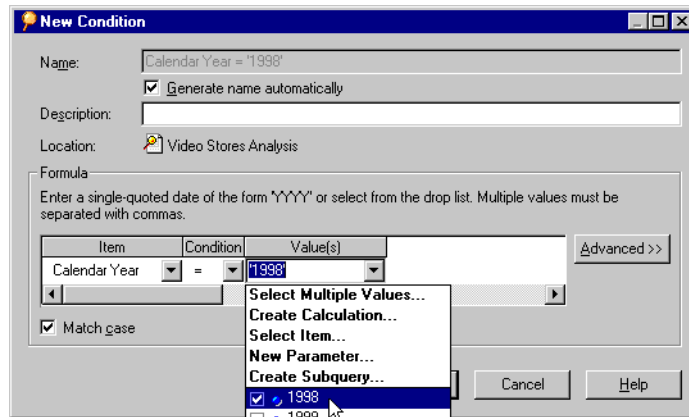
The following table describes the condition expressions:

Expression	Meaning	Example
=	Equals	Region = 'Central'; only the Central Region data is displayed.
<>	Not equal	Region <> 'Central'; all other region data except Central is displayed.
>	Greater than	Profit SUM > 10000; all Profit SUM items greater than 10000 are displayed.
<	Less than	Profit SUM < 10000; all Profit SUM items less than 10000 are displayed.

Expression	Meaning	Example
<=	Less than or equal to	Profit SUM <= 10000; all Profit SUM items less than or equal to 10000 are displayed.
>=	Greater than or equal to	Profit SUM >= 10000; all Profit SUM items greater than or equal to 10000 are displayed.
LIKE	Similar to (using wildcard matching)	Name LIKE 'A%'; finds all names beginning with the letter A. The percent (%) sign matches any number of characters. An underscore symbol (_) matches a single character.
IN	Contains one or more values	City IN ('Boston', 'Los Angeles', 'New York'); finds data that contains at least one of the values.
IS NULL	Contains no data (not even zero)	Commission IS NULL; displays data only when commission has no value.
IS NOT NULL	Contains some data (even zero)	Commission IS NOT NULL; displays data when commission has any value.
NOT IN	Is not contained in one or more values	City NOT IN ('Boston', 'Chicago'); does not display data that contains Boston or Chicago.
BETWEEN	A value lies between two values	Profit BETWEEN 1000 AND 2000; displays profits greater than or equal to 1000 or less than or equal to 2000.
NOT BETWEEN	A value lies outside of two values	Profits NOT BETWEEN 1000 AND 2000; displays profits less than 1000 or greater than 2000.
NOT LIKE	Not similar to	Name NOT LIKE 'A%'; finds all names not beginning with A. The percent (%) sign matches any number of characters. An underscore symbol (_) matches a single character.
!= and ^=	Not equals	Region != 'Central'; finds all regions except Central.  Note: These two expressions have the same meaning because both are supported by SQL programming. Therefore, if you use an SQL programming statement to create a complex conditional value, Discoverer can recognize it regardless of which expression you use in the program.

To create an advanced condition, click the drop-down button to see other options. You can also click the **Advanced** button for more options. See [Chapter 8, "Advanced Discoverer Desktop Features"](#) for a description of the value options and other advanced features.

**Figure 5-37** Enter the Condition Value(s)



If you select a data item with discrete values, such as Calendar Year, and then select “is equal to” you do not have to type in the value. Click the Value(s) drop-down button to see the list of values for that item, then select the one that you want to use.

For example, in the sample Video Stores workbook, the three values for Calendar Year are 1998, 1999, and 2000.

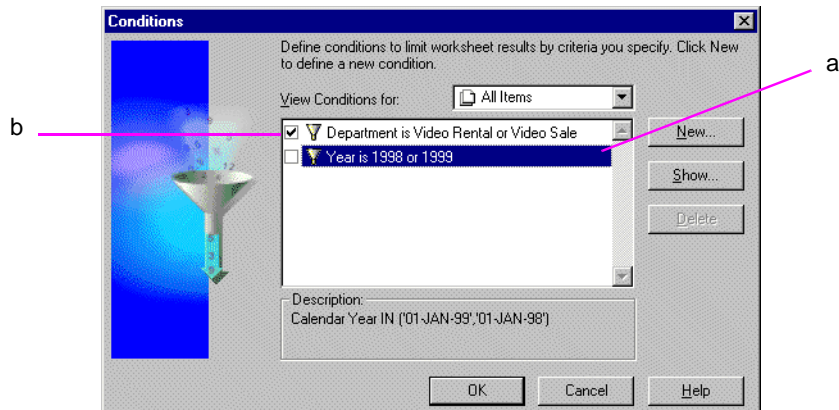
7. If you are dealing with text and want the condition to match the uppercase and lowercase characters in the text, select the **Match Case** check box.  
For example, if you want the condition to filter the data to find all “Widgets” but not “widgets”, select the **Match Case** check box.
8. Click OK. The new condition appears on the Conditions dialog box.

## 5.5.2 Editing and Removing Condition Expressions

To edit an existing condition:

1. Select the condition on the Conditions dialog box.

**Figure 5–38** Conditions Dialog Box



### Key to Figure 5–32.

- a. The selected check box indicates that this condition is active.
  - b. This condition is selected.
2. Click the Edit button. The Edit Condition dialog box appears.
  3. Make the changes you want to the condition.
  4. Click OK. The condition is now edited.

If you now want to apply that condition to the data, make sure it is turned on (the box in front of the condition has a checkmark in it) and click OK.

To delete a condition from the list of conditions that you can apply to the data:

1. Choose **Tools | Conditions**.

The Conditions dialog box appears (Figure 5–32).

2. Select the condition you want to delete.
3. Click the Delete button.

The condition is removed from the list.



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## Reporting Results

This chapter explains how to create reports with Discoverer Desktop.

Topics in this chapter include:

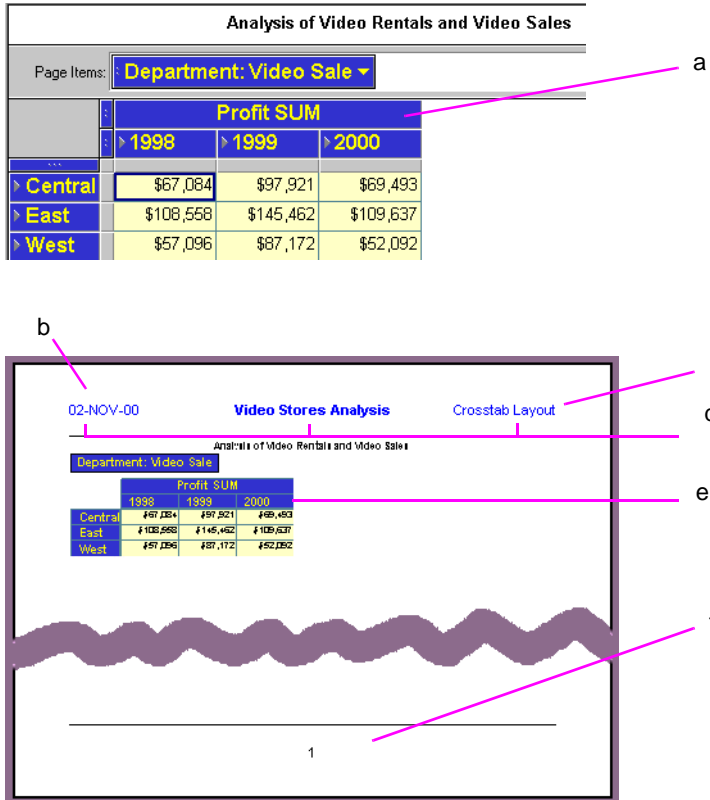
- Preparing reports for printing and previewing
- Sending reports with e-mail
- Exporting to other applications
- Producing scheduled reports
- Sharing worksheets

### 6.1 Preparing Reports for Printing

Tables and crosstabs are displayed in a format that easily lends itself to reporting of results. Additional options, such as adding headers and footers, page numbers, and the date, help you prepare the report for printing.

Here is an example of a table and a printed version of it as a report.

**Figure 6–1 Sample Table and Report**



**Key to Figure 6–1.**

- a. The Discoverer Worksheet.
- b. The Worksheet Report generated by Discoverer.
- c. The Report Header section.
- d. The Header contains the Date, Workbook name, and Worksheet name.
- e. The Report Body section, which contains the Worksheet data.
- f. The Report Footer section, containing a variable for the page number.



## 6.1.1 Selecting Print Options

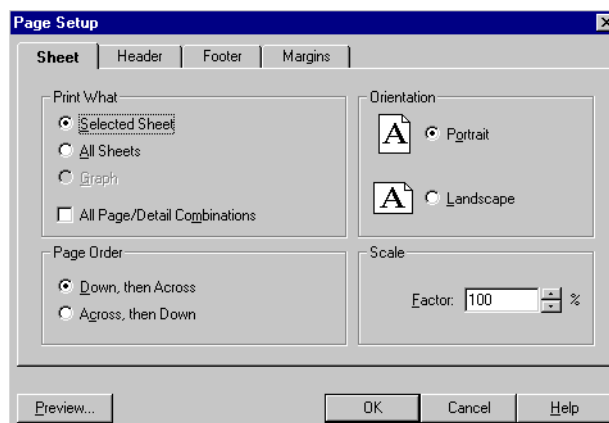
Use the Page Setup dialog box to add print options to a report.

To select print options:

1. Choose **File** | **Page Setup**.

The Page Setup dialog box appears. The tabs across the top of the dialog box list the various types of options you can select to design the report.

**Figure 6–2** Page Setup for Worksheets



**Print What**—Specifies the sheet(s) that you want to print.

- **Selected Sheet**—Prints the current sheet displayed in the workbook.
- **All sheets**—Prints all of the sheets in the workbook.
- **Graph**— Prints the graph of a worksheet. This option is available only if the worksheet's graph is displayed. Choose **Graph** | **Show** to display a graph.
- **All Page/Detail Combinations**—Prints all pages of a worksheet with all combinations of the page items and data points.

**Note:** Be careful when selecting this option if your worksheet includes many pages and data items. You may print more than you intend.

**Page Order**—Specifies how to print worksheets that don't fit on a single page, such as a table with many columns.

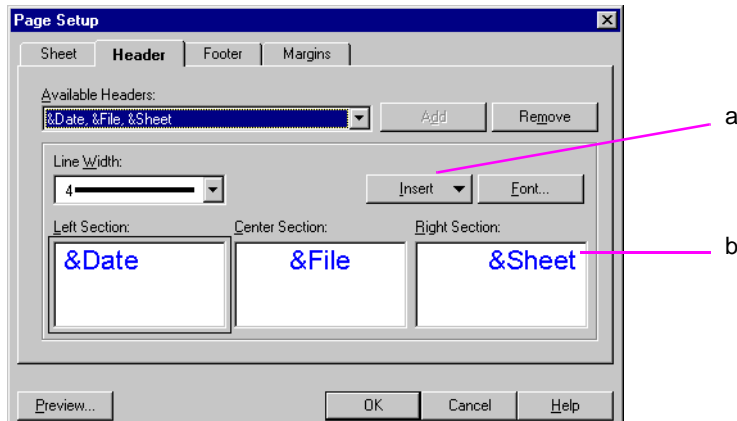
- **Down, then Across**—Prints the left-hand section of the table or crosstab from top to bottom on successive pages, then prints the right-hand section from top to bottom on successive pages.
- **Across, then Down**—Prints the top section of the table or crosstab from left to right on successive pages, then prints the bottom section from left to right on successive pages.

**Orientation**—Prints in either Portrait or Landscape mode. Tables and crosstabs often are better suited to the Landscape mode.

**Scale**—This option is available if your printer uses a Postscript driver for printing. Scaling prints the table or crosstab at the scale factor in the box. Click the up and down arrows to increase or decrease the number. Scaling is particularly useful when you're printing tables and crosstabs that are too big to fit on a single page. Scaling "shrinks" the table or crosstab so more rows and columns fit on the page. (You can also configure scaling from the File | Print | Properties, Advanced Tab dialog, if a postscript printer is being used.)

2. Click the Header tab to see the options for the report's header. The options for footers are the same.

**Figure 6-3** Page Setup for Header and Footer



**Key to Figure 6-3.**

- a. Click Insert to insert system variables (such as Date, Time, or Worksheet name etc) into the Left Section, Center Section, and Right Section. Then click Add to add them to the header or footer.
- b. Enter text here for the header or footer, or add system variables using the Insert option.

**Available Headers**—Lists headers you have already created. Click the drop-down arrow to see the list. Select the one you want on your report. The names are derived from the text typed into the boxes for the Left, Center, and Right sections.

To create a new header (or footer), choose **<none>** from the drop-down list. Enter the header text in the three boxes for the Left, Center, and Right sections. Click the Add button. That header is added to the drop-down list. To remove a header from the list, select it and click the **Remove** button.

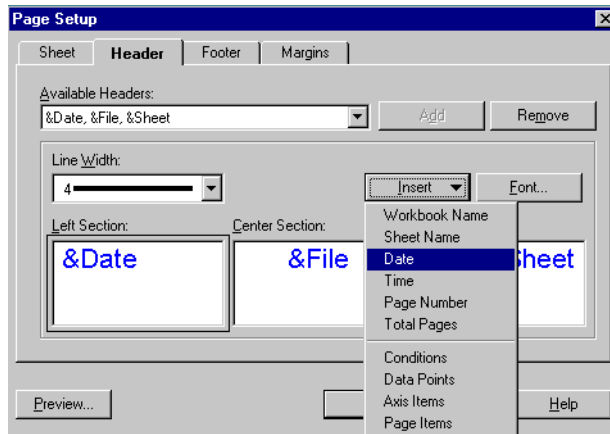
**Line Width**—Sets the width of a line that separates the header from the body of the report. Choose **No Line** if you don't want a separating line on the report.

**Left, Center, Right Sections**—Displays the text of the header selected in the Available Header list above. To edit a header, click in a box and type the new text. By default, the Left Section's text is left-justified, the Center's text is centered, and the Right Section's text is right-justified.

**Insert**—Lists information that you can add to the header. Click in the text where you want the inserted information to appear, then choose from the list to add a text code to the header or footer. The text code is a "placeholder" for variable information in the report.

In the following figure, &Date is the placeholder for the current date when the report is printed. Because the inserted information is in the Left Section box, the current date appears at the left side of the page on the printed report.

**Figure 6–4 Insert Header/Footer Text**

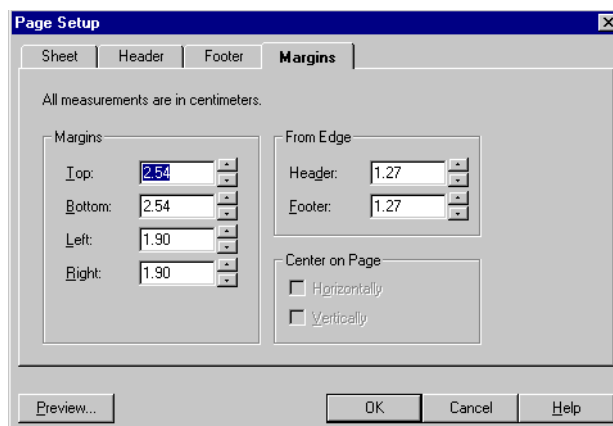


You can mix typed text with inserted text. Here are some examples:

You type...	Then insert...	The text looks like this...	This appears in the report
Page	Page Number	Page &Page	Page 1, Page 2, Page 3...
Page of	Page Number Total Pages	Page &Page of &Pages	Page 1 of 10, Page 2 of 10, Page 3 of 10...
Report date:	Date	Report date: &Date	Report date: April 15, 1998

**Font**—Displays the Font dialog box. Click anywhere in the section where you want to change the font. Click the Font button then select the options for the text. Click OK. All the text for the selected section receives the new font.

3. Click the Margin tab to see the options for the report’s margins.

**Figure 6–5** Page Margins Setup for Reports

**Margins**—Sets the margins on the page. Click the up and down arrows next to a margin setting to increase or decrease it.

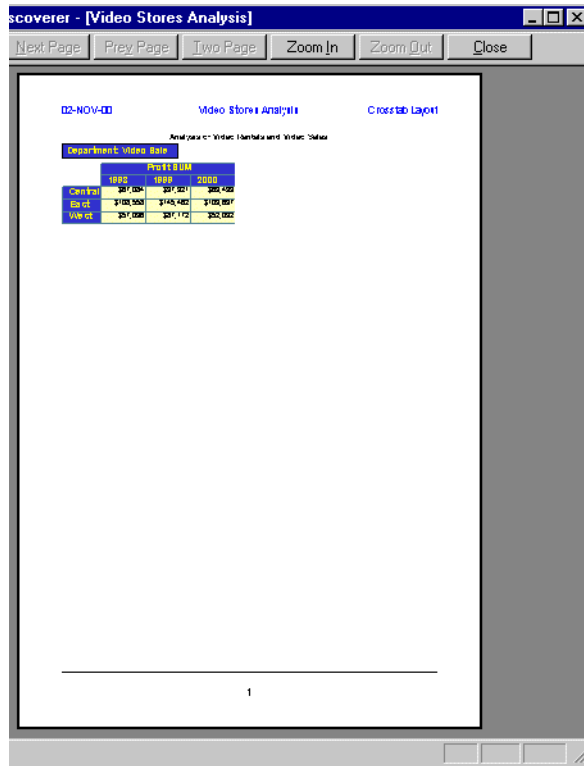
**From Edge**—Sets the distance of the header and footer from the edge of the paper. Click the up and down arrow to increase or decrease the distance. Note that the distance from the edge of the page cannot be greater than the margin; otherwise, the header or footer would print in the table or crosstab. For example, if the bottom margin is 1.00, the footer cannot be 1.25.

4. To see the results of the Page Setup options, click the **Preview** button. A preview of the report appears on the screen. See the next section for details.
5. Click OK to put all the page setup settings into effect.

## 6.1.2 Previewing a Report

To preview a report, click the **Preview** button on the Page Setup dialog box or choose **File | Print Preview**. The Print Preview window appears and shows a representation of the printed report.

**Figure 6–6** *Print Preview Window*



The buttons across the top of the Print Preview window are for selecting preview options:

**Print**—Prints the report.

**Next Page**—Displays the next page of the report. As you move through the pages, the page number of the report appears at the bottom left corner of the window.

**Prev Page**—Displays the previous page of the report.

**Two Page/One Page**—Displays two report pages side-by-side. When two report pages are displayed the button changes to read One Page. Click the One Page button to display a single page. This option is not available when the page is zoomed in, because two pages cannot fit side-by-side in the window.

**Zoom In**—Enlarges the page so you can preview it in more detail. You can zoom in up to three times. The pointer becomes a magnifying glass. You can also zoom in the image by putting the pointer anywhere on the page and clicking.

**Zoom Out**—Reduces an enlarged (zoomed in) image.

**Close**—Close the Print Preview window.

## 6.2 Sending Reports with E-Mail Messages

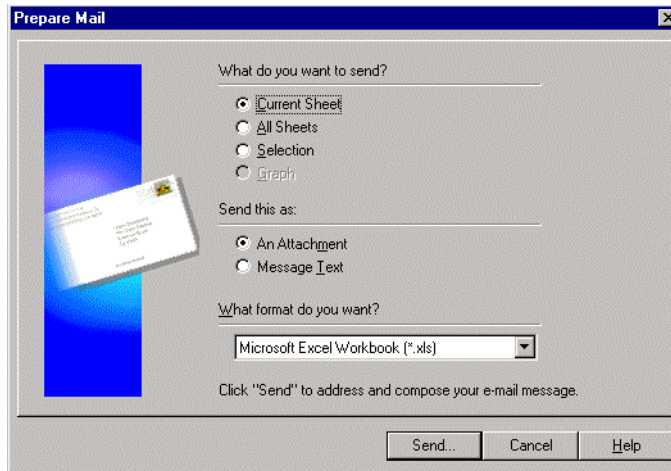
You can send worksheets, graphs, and selections of a table or crosstab as part of an e-mail message. This feature is available for most e-mail applications, however, if it does not appear on the menu, your e-mail application does not support the feature.

To send a report with an e-mail message:

1. Display the worksheet that you want to send as a report.
  - To send only a section of the worksheet with the e-mail, select that section by dragging over it.
  - To send a graph, display the graph first by choosing **Graph | Show**.
2. Choose **File | Send**.

The Prepare Mail dialog box appears.

**Figure 6–7 Prepare Mail Dialog Box**



**Current Sheet**—Selects the current worksheet displayed in the workbook window to send with the e-mail.

**All Sheets**—Selects all the sheets in the workbook to send with the e-mail.

**Selection**—Sends a portion of the worksheet if you have a portion of the worksheet selected.

**Graph**—Sends a graph if a graph is displayed. The graph is sent as an attachment to the e-mail.

**Send this as**—These options are available for the appropriate types of reports. For example, graphs can only be sent as attachments, not as message text.

- **An Attachment**—The selected worksheet or graph is attached to your e-mail message.
- **Message Text**—The current worksheet or selected portion of a worksheet is placed in the body of the e-mail message. This option is not available for graphs and the All Sheets option.

**Note:** To send the workbook in a Discoverer format, select **All Sheets** and send the workbook as **An Attachment**.

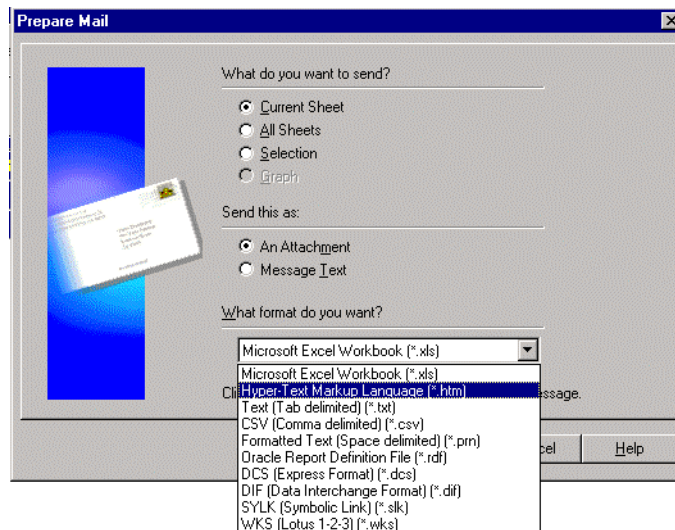


**What format do you want**—Click the drop-down arrow and choose a format appropriate for your e-mail application. The options on the list correspond to the type of worksheet you want to send.

For example, the only format for a graph is Windows Meta File (WMF), which is the proper format for sending a graph. Therefore, the drop-down menu is not available for graphs. Similarly, to send a selected portion of a worksheet as attachment text, the drop-down menu provides the appropriate options.

The following figure shows some available options for attachments:

**Figure 6–8 E-Mail Attachment Format Options**



If you select Oracle Report Definition File (\*.rdf), a Next button appears at the bottom of the dialog box so you can select additional formatting for the report. See [Section 6.3.1, "Exporting to Oracle Reports"](#) for details.

**3. Click the **Send** button.**

Your e-mail application starts. Based on your selections on the Prepare Mail dialog box, the worksheet or workbook is either an attachment or the message text of the e-mail message.

## 6.3 Exporting to Other Applications

You can export tables and crosstabs in a variety of formats to open them in other applications. For example, you can export a table to a Microsoft Excel workbook or a Lotus 1-2-3 spreadsheet and then use Excel or Lotus 1-2-3 to open the table.

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Exporting a table or crosstab exports the data, formatting, and layout of the table or crosstab. Exporting does not export the calculations, conditions, or other tools that you define in Discoverer. In other words, you can view the exported data in another application, but you cannot apply the Discoverer tools to it in that application.

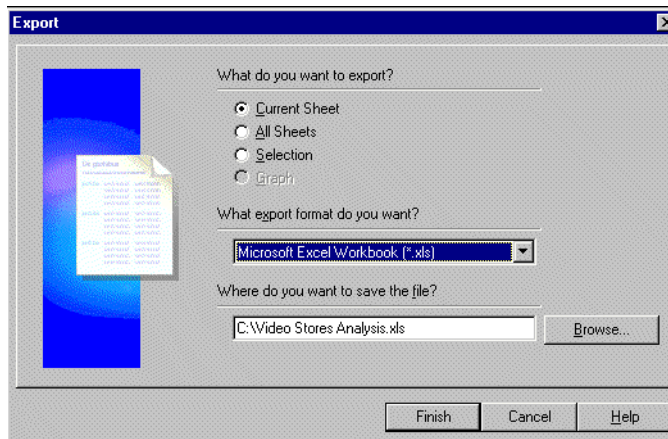
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To export to other applications:

1. Display the worksheet that you want to export.
2. Choose **File | Export**.

The Export dialog box appears. See the previous section for a description of the export options.

**Figure 6–9** *Export Dialog Box*



3. Choose an export format from the drop-down menu.

4. Choose a directory to save the export file. You can also type the directory path in the box. Click the Browse button to see other directories.
5. Enter a name for the report in the directory path.

For example, in the dialog box shown above, the path is C:\ORAWIN95\DISCVR31\vidstore.dis.txt where *vidstore.dis.txt* is the name of the report.

To rename the report in that path to Sales\_Figures, select ***vidstore.dis.txt*** and then type ***Sales\_Figures***.

6. Click Finish.

The report is saved in the new format in the directory you specified.

### 6.3.1 Exporting to Oracle Reports

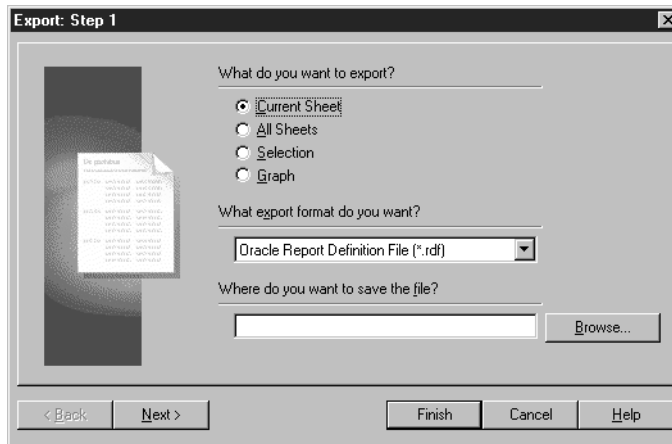
If your computer includes the Oracle Reports application, you can export tables and crosstabs from Discoverer as an Oracle Report. Having this capability means that you can apply the extensive formatting features of Oracle Reports to your Discoverer reports.

To export to Oracle Reports:

1. Display the worksheet that you want to export to Oracle Reports.
2. Choose **File | Export**.

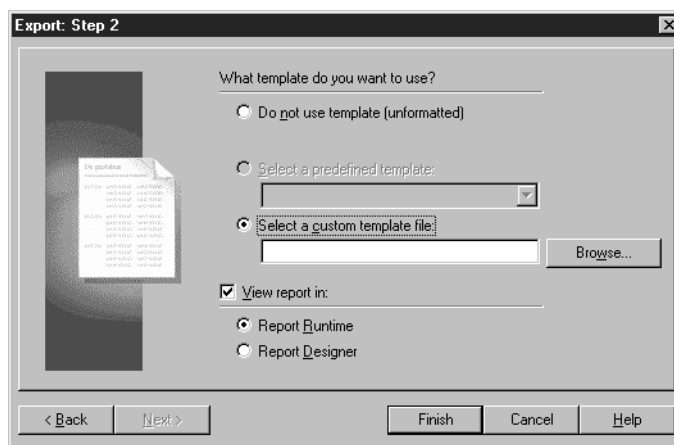
The Export dialog box appears.

**Figure 6–10** *Export to Oracle Reports, Step 1*



3. Choose Oracle Report Definition File (\*.rdf) as the export format.
4. Choose a directory to save the export file. You can also type the directory path in the box. Click the Browse button to see other directories.
5. Enter a name for the report in the directory path.
6. Click Next.

The dialog box for choosing the report's template appears.

**Figure 6–11** *Export to Oracle Reports, Step 2*

The dialog box has options for selecting a report template that you created earlier in Oracle Reports.

**Do not use template (unformatted)**—exports the report with no formatting, fonts, or colors.

**Select a predefined template**—select a template for the report from the drop-down menu; the list shows templates already predefined in Oracle Reports.

**Select a custom template file**—if you created a custom template in Oracle Reports earlier, it will be listed here; select a template from the drop-down menu.

**View Report in**—select this option if you want to see what the report looks like in the Oracle Reports format.

**Report Runtime**—view the report in the Oracle Reports runtime.

**Report Designer**—view the report in the Oracle Reports Designer application; you can then edit the report using Designer’s features.

## 7. Click Finish.

The template is applied to the report, and the report is saved in the directory that you specified earlier. You can open the report in Oracle Reports, or any other application that supports Oracle Reports.

## 6.3.2 Exporting to Microsoft Excel

The Excel tool on the tool bar helps you export Discoverer tables and crosstabs quickly to Microsoft Excel.

To export to Excel:

1. Display the worksheet you want to see in Microsoft Excel.
2. Click the Excel tool on the tool bar.

**Figure 6–12** *The Excel Tool*



The worksheet is saved in .xls format, and Microsoft Excel opens to display the worksheet.

**Figure 6–13 Sample Table and Report**

**Analysis of Video Rentals and Video Sales**

Page Items: **Department: Video Sale**

	Profit SUM		
	> 1998	> 1999	> 2000
> Central	\$67,084	\$97,921	\$69,493
> East	\$108,558	\$145,462	\$109,637
> West	\$57,096	\$87,172	\$52,092

**Microsoft Excel - Video Stores Analysis.xls**

File Edit View Insert Format Tools Data Window Help

MS Sans Serif 10 B I U

	A	B	C	D	E	F
1	Analysis of Video Rentals and Video Sales					
2						
3	Department: Video Sale					
4						
5		Profit SUM	Profit SUM	Profit SUM		
6		1998	1999	2000		
7	Central	67084.03	97921.19	69493.21		
8	East	108558.04	145462.38	109636.52		
9	West	57096	87172.22	52091.87		
10						

**Key to Figure 6–13.**

- The Discoverer Worksheet.
- The Worksheet converted to Microsoft Excel spreadsheet format (\*.xls) and displayed in Microsoft Excel.
- Notice that unformatted data is displayed. Currency symbols, decimal places, and percentage formatting are not displayed. This formatting can be re-applied in Microsoft Excel.

## 6.4 Producing Scheduled Reports

Scheduled reports are workbooks set to run at a specified time. For example, you may want to run a worksheet at the end of each month that calculates monthly profits from monthly sales figures, or run a report every two weeks based on a worksheet that produces a biweekly cash flow analysis.

Often, worksheets that you want to use as scheduled reports are designed specifically for that purpose, rather than being a worksheet for your day-to-day analysis. For example, the worksheet may include special calculations or conditions that produce the results you want for the scheduled report on a periodic basis only.

You can select all or some of the worksheets in a workbook to run as a scheduled report. Typically you schedule reports if:

- The report will take a long time to run; scheduling a report to run at night or on the weekend avoids overburdening the server during normal working hours.
- You run a report at regular intervals, such as weekly report of sales figures or a monthly cash flow analysis.

Because a scheduled report runs on the server, you do not need to leave your computer running overnight (or whenever you schedule the report to run). The results of running the scheduled report are saved on the server as well and, therefore, are available when you log on to the server and start Discoverer.

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When working with a complex set of data or a complicated worksheet, the time it takes to load the worksheet may exceed the time limit the Database Administrator set for worksheets to open. In that case, a Schedule button appears on the message box that tells you the worksheet loading time exceeds its time limit. You can then click the Schedule button to schedule the worksheet as a report so it will load later without being restricted by the time limit.

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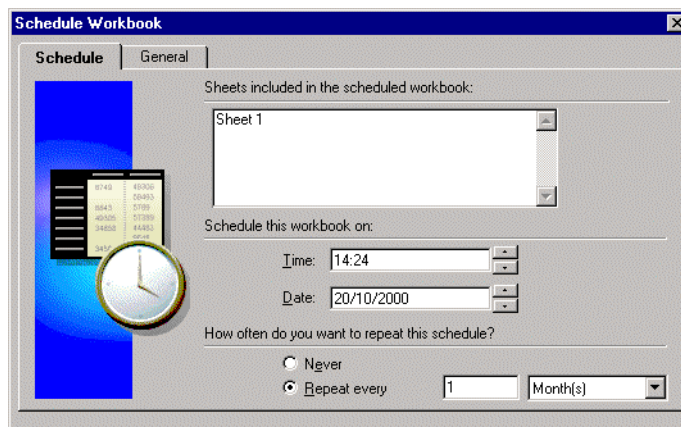
To schedule a report:

1. Open the workbook that contains the worksheets that you want to schedule to run as reports.
2. Choose **File | Schedule**.

The Schedule Workbook dialog box appears.



**Figure 6–14** *Schedule Workbook Dialog Box, Step 1*

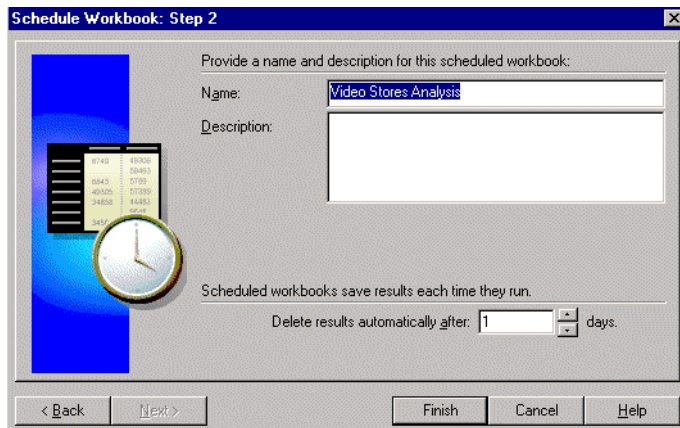


3. Click in the box next to a worksheet title to include that worksheet as part of the scheduled report.
  - Click **Select All** to include all of the workbook’s worksheets in the report.
  - Click **Select None** to remove the checkmark from each box.
4. Enter the time and date to run the report.
 

To change the time and date, click on the numbers you want to change, then either type the new time or date, or click the up and down arrows. For example, to change 08:00 PM to 12:01 AM, click on the 08 and either type 12 or click the up arrow until 08 becomes 12. Then click on the 00 and type 01 or click the up arrow once. Then click on PM and click either arrow; PM changes to AM.
5. Select one of the options for how often you want to repeat the schedule:
 

**Never**—runs the scheduled report once and only once.

**Repeat every**—runs the report on a periodic basis; enter a number and select a time interval from the drop-down menu. For example, to run a monthly report, enter 1 Month in the selections.
6. Click Next.

**Figure 6–15 Schedule Workbook Dialog Box, Step 2**

7. Enter a name for the scheduled report.
8. (Optional) Enter a description for the scheduled report. This is particularly helpful if you've created several scheduled reports. The description appears on the Scheduling Manager dialog box.
9. Enter a length of time to keep the results of the scheduled report stored on the server. After that period of time the results are automatically deleted from the server. If you've saved the results as a worksheet on your local computer, that worksheet remains intact.
10. Click Finish.

The workbook and its worksheets are now scheduled and run based on the options you selected in the Schedule Workbook dialog box.

### 6.4.1 Seeing the Results of a Scheduled Report

A scheduled report produces a worksheet or set of worksheets with the results derived from running the report. You can see those results when first starting Discoverer, or while working in a workbook.

- To see a report while you're working with Discoverer, use the Scheduling Manager as described in the next section.
- If you run a scheduled report overnight (or over the weekend) and want to see the results first thing the next morning, use the following procedure.

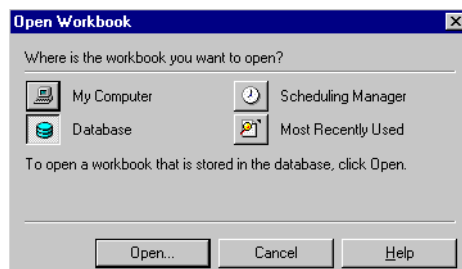
To see the results of a scheduled report when starting Discoverer:

1. Start Discoverer and log on in the normal manner.

The window appears for selecting what to open.

2. Click the button, Open an existing workbook.

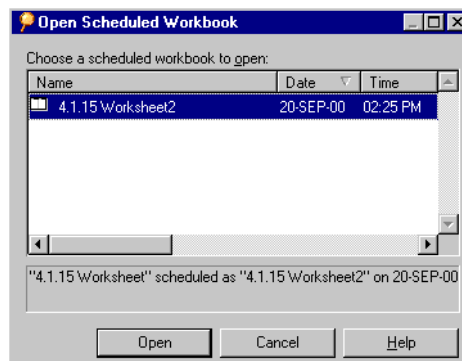
**Figure 6–16 See a Scheduled Report Results**



3. Click the Scheduling Manager button.

The Open Scheduled Workbook dialog box opens. It lists the completed reports.

**Figure 6–17 Open Scheduled Workbook Dialog Box**



4. Select the completed scheduled report you want to see.
5. Click Open.

The workbook opens and displays the worksheets generated by the scheduled report.

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The worksheets produced by running the scheduled report contain data derived specifically for that report. You can now work with the worksheet in the normal manner, but if you change any of its data, a message reminds you that the data on the worksheet is no longer the specific data derived from the report.

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#### 6.4.1.1 Viewing Scheduled Workbooks when connected as an Oracle Applications User

When connected as an Oracle Applications User, the following rules apply:

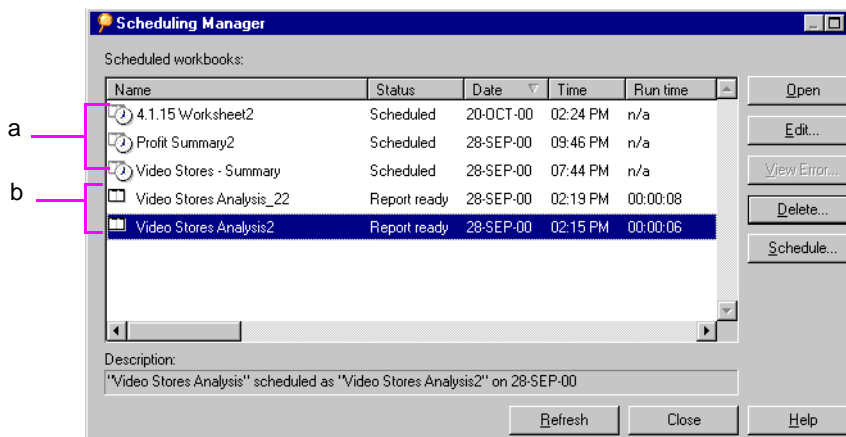
- If you connect as a particular User and Responsibility and schedule a Workbook, the Scheduled Workbook is specific to that User and Responsibility.
- If you connect as a particular User but a different Responsibility from the one used to schedule a Workbook, the Scheduled Workbook may contain different results from the original Scheduled Workbook that was created.

#### 6.4.2 Working with the Scheduling Manager

With the Scheduling Manager you can see the results of a scheduled report, schedule a new report, reschedule a report, or edit a report's schedule.

To run the Scheduling Manager, choose **File | Manage Workbooks | Scheduling Manager**. The Scheduling Manager dialog box appears.

Figure 6–18 Scheduling Manager

**Key to Figure 6–18.**

- a. Discoverer reports scheduled to run. The clock icon indicates that the reports are scheduled to run at the time specified by **Date** and **Time**.
- b. Completed Discoverer report ready to open. The report icon indicates that the reports were generated at the **Date** and **Time** indicated.

The Scheduling Manager shows scheduled reports and completed reports. The clock icon indicates a scheduled report set to run at a specified time. The icon without a clock indicates a completed report. Other information in this dialog box includes the following:

**Name**—the names of the scheduled reports or completed reports. You can open completed reports. You cannot open scheduled reports, though you can edit the schedule configuration if required.

**Status**—status types include scheduled, completed, in progress, out of date (expired), deleted by the database administrator, unable to be scheduled, had an error during the report run, and so on.

**Date and Time**—either the date and time a scheduled report is set to run or the date and time a completed report was run.

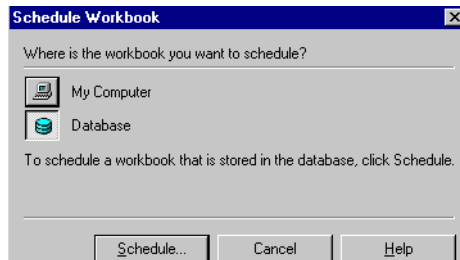
**Run time**—the length of time needed by the server to complete a scheduled report.

To schedule a new report from the Scheduling Manager dialog box:

1. Click the **Schedule** button.

The Schedule Workbook dialog box appears.

**Figure 6–19** Schedule Workbook Dialog Box



2. Click either **My Computer** or **Database** to identify the location of the workbook that contains the worksheets for the scheduled report.
3. Click **Schedule**. The Open dialog box appears.
4. Select the workbook and worksheets to schedule as reports.
5. Schedule the reports as described earlier.

To see the results of a scheduled report:

1. Select the completed report in the list.
2. Click **Open**.

**Note:** The Open button is only available when you select a completed report.

The workbook containing the completed report opens and displays the worksheets that you designated as a scheduled report.

To delete a completed report:

1. Select the completed report in the list.
2. Click **Delete**.

**Note:** The Delete button is only available when you select a completed report. It changes to **Unscheduled** when you select a scheduled report in the list.

To unschedule a scheduled report:

1. Select the scheduled report.

2. Click the **Unschedule** button.

**Note:** The Unschedule button is only available when you select a scheduled report. It changes to Delete when you select a completed report in the list.

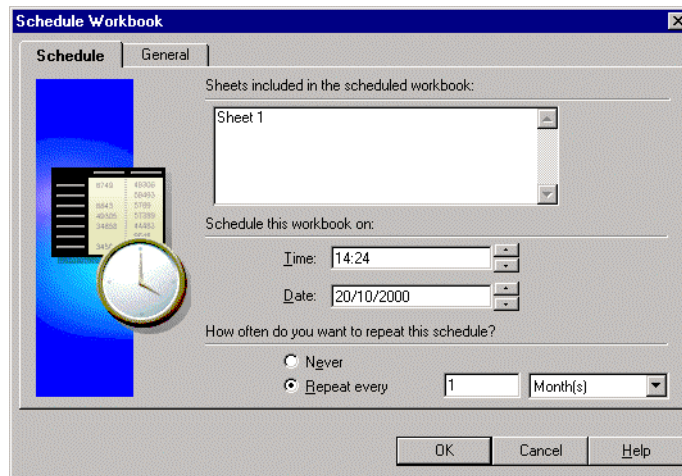
Unscheduling a report deletes it from the list.

To edit the settings of a scheduled report:

1. Select the scheduled report in the list.
2. Click the **Edit** button.

The Schedule Workbook dialog box appears. The Schedule tab is selected.

**Figure 6–20** Schedule Workbook Dialog Box for Editing



This dialog box is almost the same as the dialog box you used to create the scheduled report except you cannot add or delete the sheets in the scheduled report from this dialog box. To do that you need to create a new scheduled report by choosing **File | Schedule**.

3. Make the scheduling changes that you want.
4. Click the General tab.
5. Make the changes on that dialog box that you want.
6. Click OK.

The schedule in the Scheduling Manager dialog box updates to include your changes. Now the scheduled reports will run based on the updated settings.

#### 6.4.2.1 Viewing Errors

In the event an error occurs while the scheduled workbook is running, the status of the report will be “Error while running query” or “Could not schedule.”

To view a message that explains the error:

1. Click the scheduled report that did not run properly.
2. Click the **View Error** button.

A message shows the error code and text.

## 6.5 Sharing Workbooks

Sharing a workbook grants other people access to it to view, analyze, and print the data. You can share workbooks with other people by setting up sharing two ways:

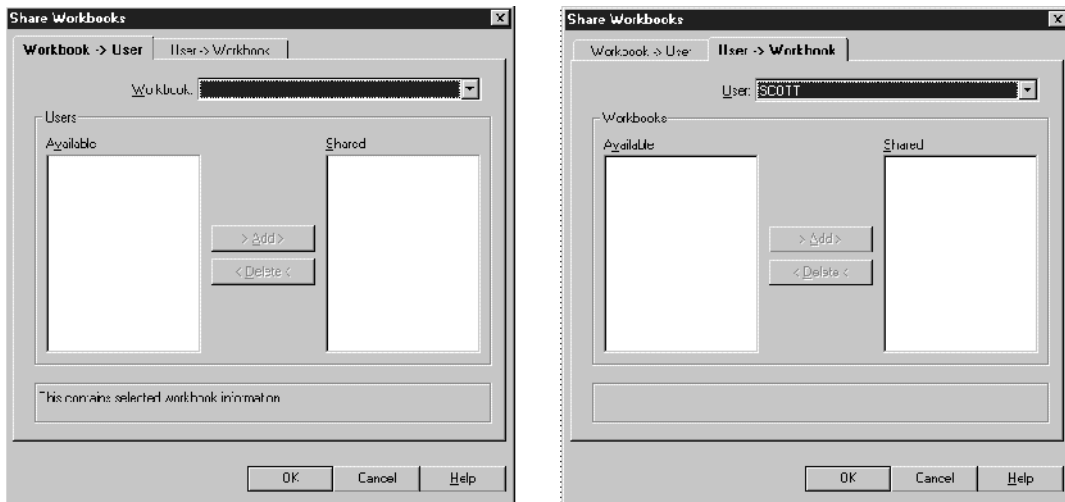
- Assign a group of people who can share one of your workbooks.
- Assign one or more workbooks that one other person can share with you.

Sharing workbooks lets others use and analyze the same data. For example, you may want everyone in the accounting department to share a workbook that includes accounts payable and accounts receivable information. Similarly, you may want a project manager to have access to all the workbooks created for the project.

To share workbooks, choose **File | Manage Workbooks | Sharing**. The Share Workbooks dialog box appears. The two tabs at the top of the dialog box are for assigning workbooks to users or users to workbooks.



**Figure 6–21** Share Workbooks Dialog Box



**Workbook -> User**—click this tab to share one workbook with several other people.

**User -> Workbook**—click this tab to share several workbooks with one other person.

To share a workbook with several other people:

1. Click the Workbook -> User tab.
2. Choose the name of the workbook that you want to share from the drop-down list.
3. In the list of Available Users, click the name of a person with whom you want to share the workbook.
4. Click Add. The person's name appears in the Shared column.

The list of names in the Shared column are the people who can have access to the workbook.

5. Repeat for all the other people with whom you want to share the workbook.
6. Click OK.

To share several workbooks with one other people:

1. Click the User -> Workbook tab.
2. Choose the name of the person with whom you want to share the workbook from the drop-down list.
3. In the list of Available Workbooks, click the name of a workbook that you want to share the other person.
4. Click Add. The workbook's name appears in the Shared column.

The list of names in the Shared column are the workbooks the other person can share with you.

5. Repeat for all the other workbooks that you want to share the other person.
6. Click OK.

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## Building Worksheets and Workbooks

Your company's database administrator creates worksheets and workbooks based on your requirements for specific data analysis and reporting. However, while working with Discoverer Desktop, you may want to create additional worksheets and workbooks.

For example, you may want to create a special worksheet as a scheduled report that gets printed each month as part of your business reporting requirements. Or, you may want to consolidate project-specific information in a separate workbook that you share with other team members.

If you have the appropriate access rights (usually granted by the database administrator), you can use the steps explained in this chapter to create worksheets and workbooks.

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You use the same basic process to build workbooks and worksheets. In fact, to build a new workbook, you create the initial worksheet for the new workbook. Thus, the steps described in this section are for both processes—building a new workbook and building a new worksheet.

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This chapter explains how to:

- Build a new workbook or worksheet
- Edit a worksheet

## 7.1 Building a New Workbook or Worksheet

The basic steps to create a new workbook or worksheet are as follows:

### Required Steps

- Select the type of display for the new worksheet or workbook.
- Select the data that belongs on the worksheet or in the workbook.

### Optional Steps

- Arrange the data on a table or crosstab layout.
- Sort the data (for tables only).
- Select conditions to apply to the data.
- Select calculations to apply to the data.

To start the process to build a new workbook or worksheet, choose either of the following:

1. Choose **Sheet** | **New Sheet** to build a new worksheet.
2. Choose **File** | **New** to create a new workbook.

The New Sheet dialog box appears ([Figure 7-1](#)).

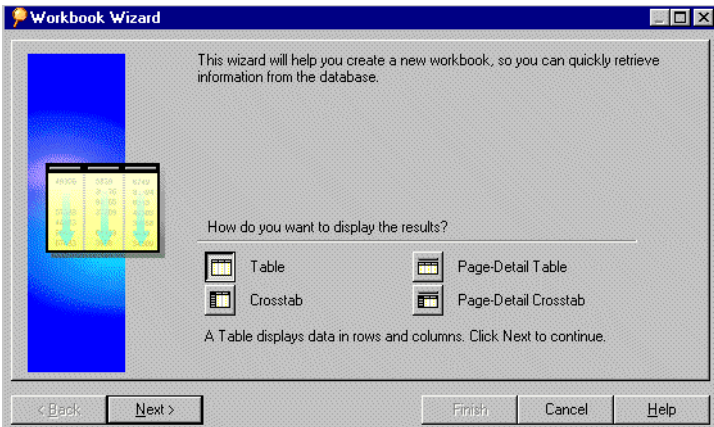
**Note:** The sample dialog boxes in the rest of this section are for creating a new worksheet. The dialog boxes for creating a new workbook are the same, except the dialog box titles are “Workbook Wizard” instead of “New Sheet.”

### 7.1.1 Selecting Display Type

The first dialog box in the process is where you select the display type—table or crosstab—for the new worksheet ([Figure 7-1](#)).

1. Click the icon for the type of display for the new worksheet.
2. Click **Next**.

Figure 7-1 Workbook Wizard Dialog Box

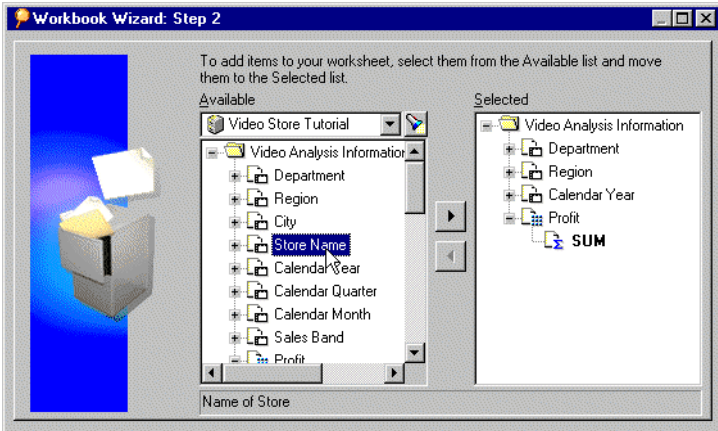


The next dialog box is for selecting the data that you want on the new worksheet.

### 7.1.2 Selecting the Data

This dialog box lists the data in the business area that you can use to build the new worksheet. To include data on the new worksheet, you move it from the Available column to the Selected column.

Figure 7-2 Step 2: Select the Data



The following describes the icons displayed in the list:



**Business area**—displays a business area created by the database administrator; to select another business area for the new worksheet, click the drop-down arrow and choose from the list of business areas.



**Find button**—click to find a specific item or folder by name in the current business area, or all business areas.



**Folders**—holds the items that you can select for your worksheets.

To add data to a new worksheet:

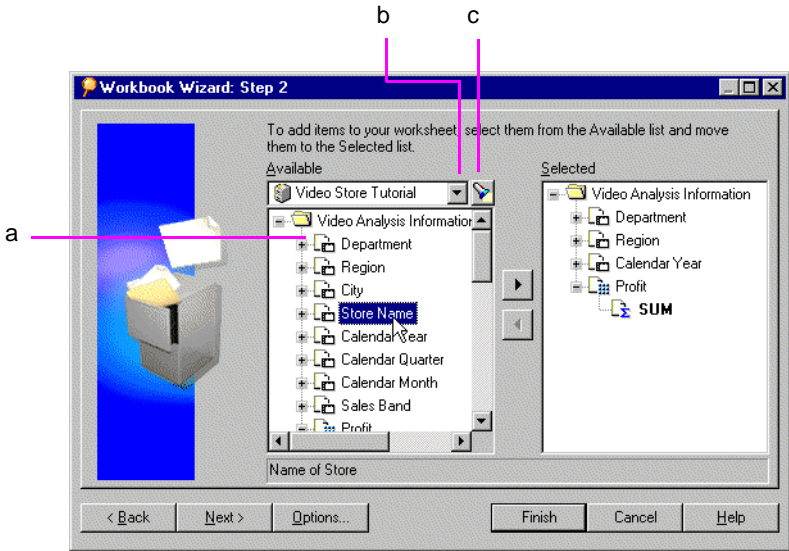
1. Select the business area from the drop-down menu at the top of the Available list.
2. Click the plus (+) sign next to a folder to see all of the items in it.

Folders containing items available for the current worksheet are active. Others are grayed out.

The items may have plus signs next to them too indicating you can select values for those items as well. For example, the City item contains the names of the cities in the database. You can select a specific city to add to the worksheet.

The following figure shows that the Video Analysis folder is expanded to show its items (such as Department and Region), and the Region item is expanded to show the list of values that correspond to Region (Central, East, West) and the ways to aggregate the data (Count, Max, Min).

Figure 7-3 See Available Items



Key to Figure 7-3.

- a. Click a + sign to expand the item and see its values.
- b. Drop-down button.
- c. Browse button.

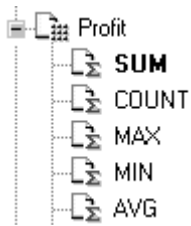
The icons in the expanded list are:



**Axis Item**—corresponds to a column on a table or a level on a crosstab; axis items remain constant and have relatively few values, such as the names of Departments in your company, or the names of your Sales Regions. The values of an axis item are shown as a list of values.

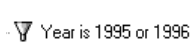
**Axis Item Value**—one of the values of an axis item.

**Numeric Item**—represents numeric data; corresponds to the data in the body of a crosstab. The values of numeric items can change as you analyze the data, such as summing profits for cities compared to regions. Numeric items also behave as Axis items on tables.



**Aggregations**—the mathematical functions to aggregate the data; for text items such as Region, the typical aggregations are Count, Max, and Min. That is, you can count the number of text items, or find the highest or lowest (where A might be the highest and Z the lowest).

For numeric data, the typical aggregations are Sum, Count, Max, Min, Average, and Detail. For example, you can find the Sum or Average of the numeric data with the aggregation. The aggregation in boldface type is the default. The database administrator sets which aggregation is the default.



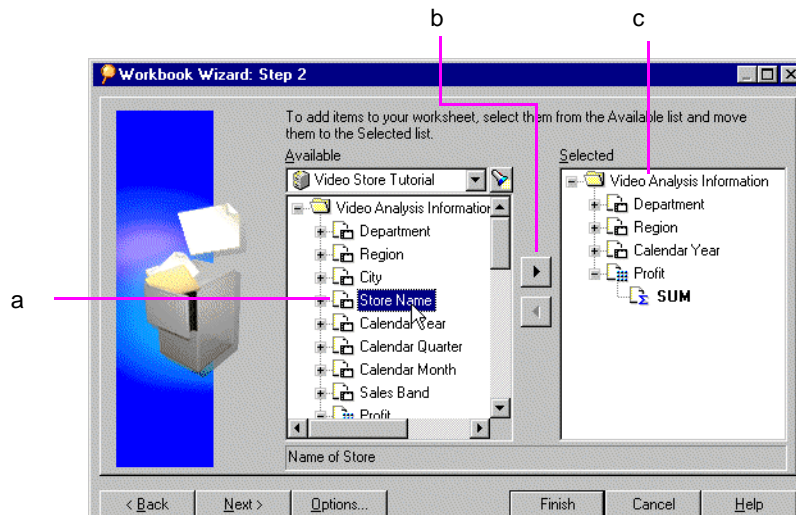
**Condition**—a filter for finding specific data. The database administrator defines conditions for the folder, not for individual items.

Clicking the **Options** button displays a dialog box for selecting options for the new worksheet or workbook. See [Section 8.5, "Setting Options"](#) for details.

Add specific data to your worksheet as follows:

1. Select the item(s) to add to the new worksheet. Shift-click on items to add multiple items.

**Figure 7-4** *Selecting Items for your Worksheet*





**Key to Figure 7-4.**

- a. Click an Item to select the Item.
- b. The Add button.
- c. The **Selected** list, containing Items that will be displayed on your Worksheet.

The Add button becomes active.

2. Click the **Add** button to add the item(s) to the new worksheet. You can also drag the selected items from the Available list to the Selected box, (see [Figure 7-4](#)).

The Selected list shows the data for the new worksheet:

You can select data at various levels in the Available list. For example, selecting a folder and moving it to the Selected list, moves all the data within the folder to the Selected list. Similarly, adding an item adds all the values in it to the worksheet. For example, adding the City item adds all the names of the cities.

Adding a numeric item automatically adds its default aggregation functions. All values are automatically added too. Adding an axis item does not automatically add aggregate functions.

To remove an item from the Selected list, click it and drag it back to the Available list, or click the **Remove** button (under the Add button).

3. At this point, you can click **Finish** to create a new worksheet or workbook. However, clicking **Next** shows the next (optional) dialog box for adding other features to the new worksheet or workbook.

**Note:** to change selections on the previous dialog boxes, click the **Back** button.

4. Click **Next** to see the dialog box for step 3 of the process.

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NOTE: If you add an Aggregated Data Point and a Detail Data Point to the same Worksheet, Discoverer displays a warning that you *may* get unexpected results. Click **OK** to continue.

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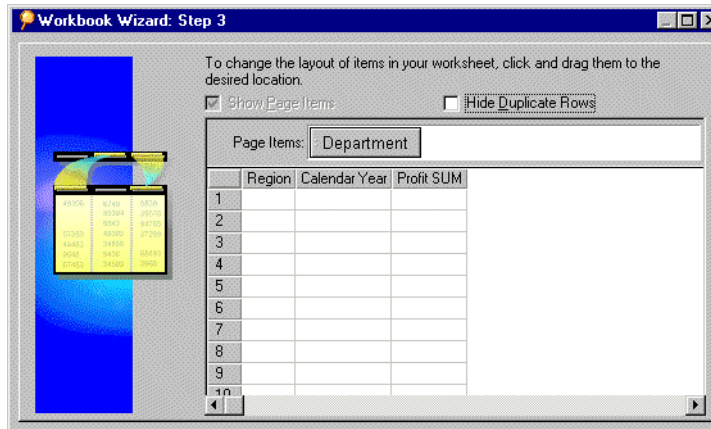
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### 7.1.3 Arranging the Layout

In this step, you move the items on the worksheet to display them in the proper columns, rows, and page axes. It is the same basic process as on the worksheet itself; that is, drag the item to a new position on the worksheet. See [Section 4.1, "Pivoting Data"](#) for a description of moving items to the page axis on a worksheet.

The layout that appears on the dialog box depends on the selection—table or crosstab—in step 1 of the new worksheet/new workbook process. The following figure shows a tabular layout.

**Figure 7-5 Step 3: Arrange the Layout**



The columns on the table correspond to the items selected for the new sheet.

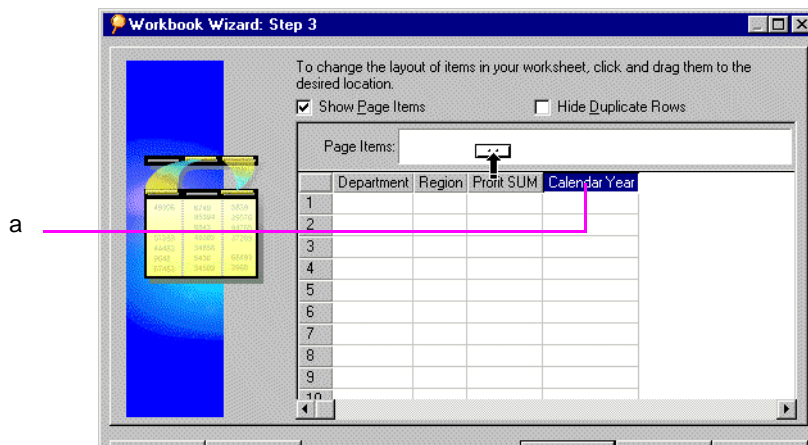
**Show Page Items**—If an item is selected as a Page Item (as Department is in the example above), this option is *not* available. If no item is selected as a Page Item, the option becomes available. Removing the checkmark hides the Page Item section of the layout. Click the option again to see the Page Item section.

**Hide Duplicate Rows**—Select this option to hide duplicate rows of data.

To rearrange the data on the table:

1. Select the item to move.
2. Drag it to its new position. The following figure shows moving Year to the Page Axis.

Figure 7-6 Creating Page Items

**Key to Figure 7-6.**

- a. Drag an item to the Page Items area to create a Page Item. The Show Page Items check box must be selected first. You can also move Items to the left and right to change the display layout.

Rearranging items on this layout does not preclude you from rearranging them directly on the worksheet.

3. Click **Next** or click **Finish** if you're finished rearranging the data and creating the new worksheet or workbook.

### 7.1.4 Selecting Conditions for the Data

Conditions defined for the items added to the Selected list appear in the next dialog box. You can select the conditions as part of the new worksheet or workbook, or create new conditions.

**Figure 7-7 Step 4: Select Data Conditions**



1. Click the boxes in front of the conditions that you want to add to the new worksheet or workbook.

In the figure above, the first two conditions are selected.

- To create a new condition, click the **New** button.
- To edit a condition, select it in the list and click the **Edit** button.

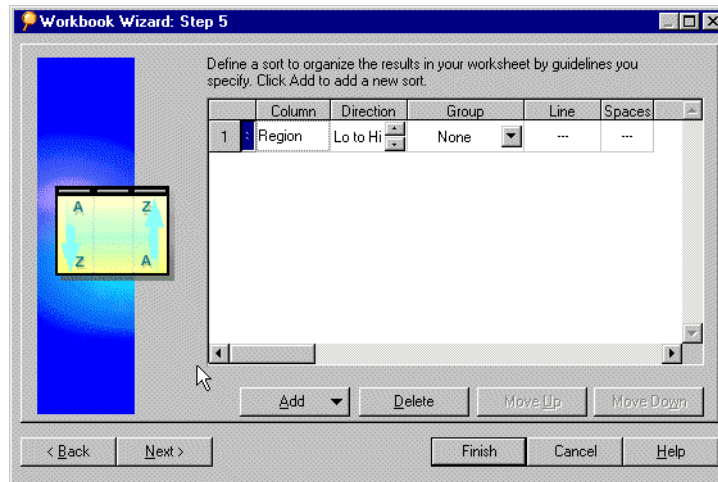
See [Section 5.5, "Finding Data that Meets Conditions"](#) for a description of creating and editing conditions. See [Section 8.4, "Creating Advanced Conditions"](#) for a description of creating advanced conditions.

2. Click **Next** or click **Finish** if you're finished selecting conditions for the data items and creating the new worksheet or workbook.

## 7.1.5 Sorting the Data in a New Worksheet or Workbook

This step only applies to tables. If you are creating a new worksheet or workbook as a crosstab, the sorting dialog box does not appear.

**Figure 7–8 Step 5: Sort the Data**

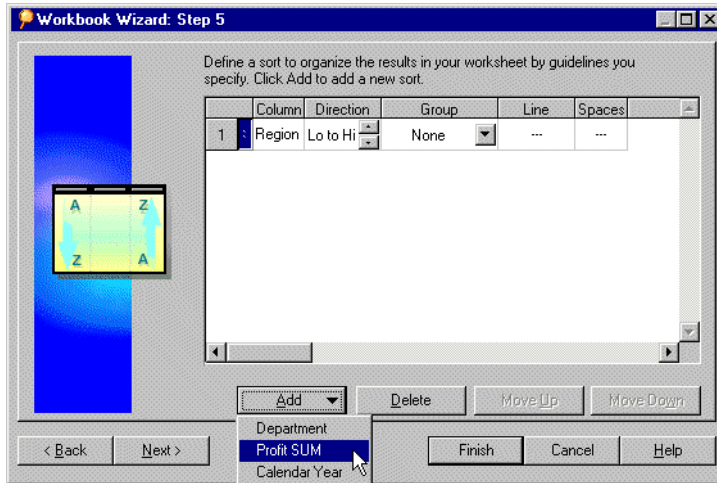


To sort the data in the new worksheet or workbook:

1. Click the **Add** button.

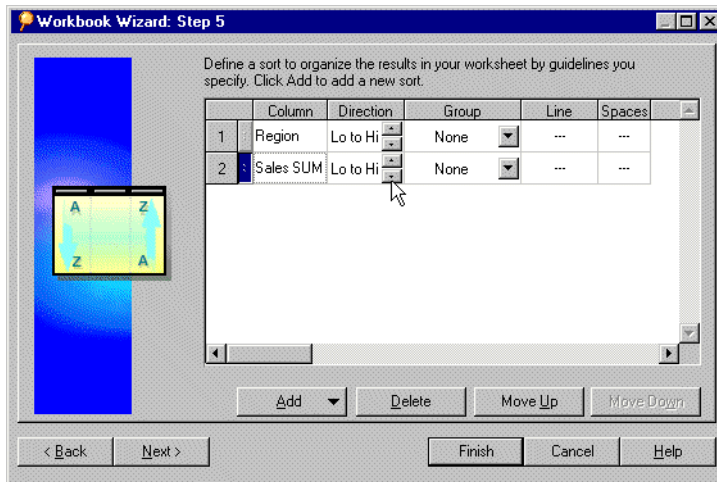
The items on the new table appear in the drop-down list.

**Figure 7–9 Select Sort Item**



2. Select an item on which you want to sort the table from the pull-down list. The selected is added to the dialog box.

**Figure 7–10 Sort the Data**

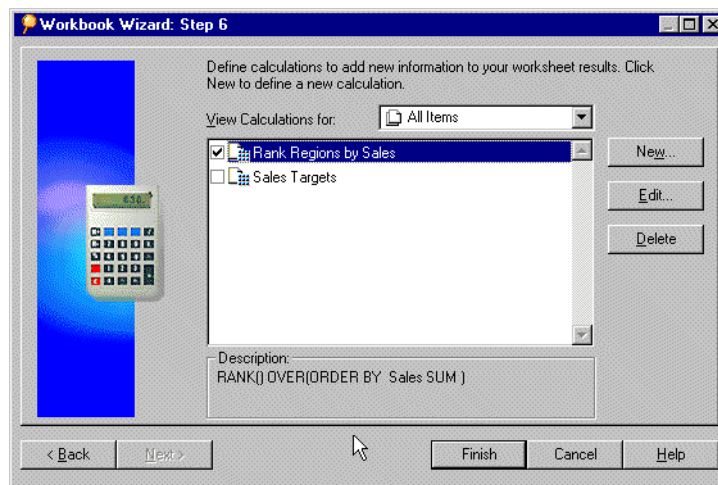


3. Set the **Direction**, **Group**, **Line**, and **Spaces** options as required. See [Section 4.3.1, "Sorting Data on Tables"](#) for a complete description of the sorting options.
4. When you have defined your Sort, click **Next** to move to the next step in the Wizard, or click **Finish** to create your Workbook with the configuration that you have defined so far.

## 7.1.6 Selecting Calculations for the Data

Calculations defined for the items added to the Selected list appear in the final dialog box. You can select the calculations as part of the new worksheet or workbook, or create new calculations.

**Figure 7–11 Step 6: Select Calculations**



To select calculations for the data:

1. Click the boxes in front of the conditions for the new worksheet or workbook. In the figure above, all the calculations are selected.
  - To create a new calculation click the New button.
  - To edit a calculation, select it in the list and click the Edit button.

See [Section 8.3, "Creating Calculations"](#) for a complete description of creating and editing calculations.

2. Click **Finish**. The new worksheet or workbook appears on the screen.

## 7.2 Editing a Worksheet

The dialog boxes for editing a worksheet offer the same selections and features that you use to create a worksheet or workbook.

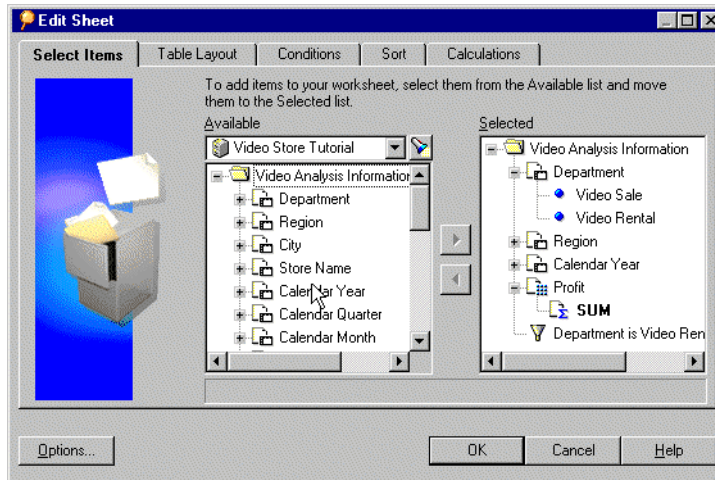
To edit a worksheet:

1. Display the worksheet that you want to edit.
2. Click the Edit Sheet icon on the toolbar, or choose **Sheet | Edit Sheet**.

The Edit Sheet dialog box appears.

The tabs across the top of the dialog box are for editing the various features of the worksheet. Clicking on a tab displays the options for the feature. When the Select Items tab is selected, the items shown in the Selected list are the items currently in use on the worksheet. Items not grayed out in the Available list can be added to the worksheet.

**Figure 7–12** *Edit Sheet Items*



The figure above is for editing a tabular worksheet. A similar dialog box appears for crosstab worksheets, except Table Layout tab becomes Crosstab Layout and the dialog box does not include the Sort tab. To sort crosstab data, choose **Tools | Sort**.



## 7.2.1 Adding and Deleting Items on a Worksheet

The first tab on the Edit Sheet dialog box is for adding or deleting items on a worksheet. For example, if the original item on the worksheet is Region, but does not include City names, you can add a column for the cities within the regions.

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Adding a new item to a worksheet adds a column to the table or crosstab, but you can see the same item as part of drilling into data. For example, if you included Cities as part of the original worksheet, drilling down into the Region data displays the cities under the regions.

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To add an item to the current worksheet:

1. Click the plus (+) sign next to folders and items to see their contents.
2. Select the item in the Available list.
3. Click the **Add** button or drag the item to the Selected list.

To delete an item from the current worksheet:

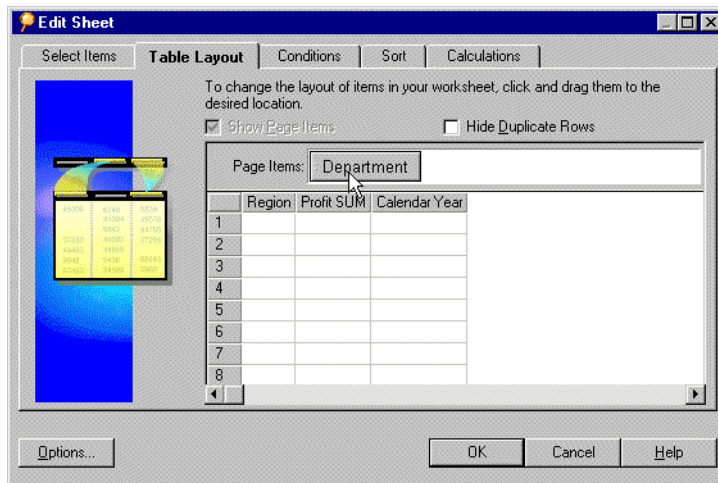
1. Select the item in the Selected list.
2. Click the **Remove** button (the button under the Add button).

## 7.2.2 Editing the Layout

Use the Layout tab ([Figure 7-13](#)) to arrange the items on the worksheet. Drag an item to its new position on the worksheet just as you do on the worksheet itself. Click **Hide Duplicate Rows** to hide rows that contain the same data.

To remove the Page Items box from the top of the worksheet, drag all items from that box to the report body, then click **Shows Page Items** to remove the checkmark.

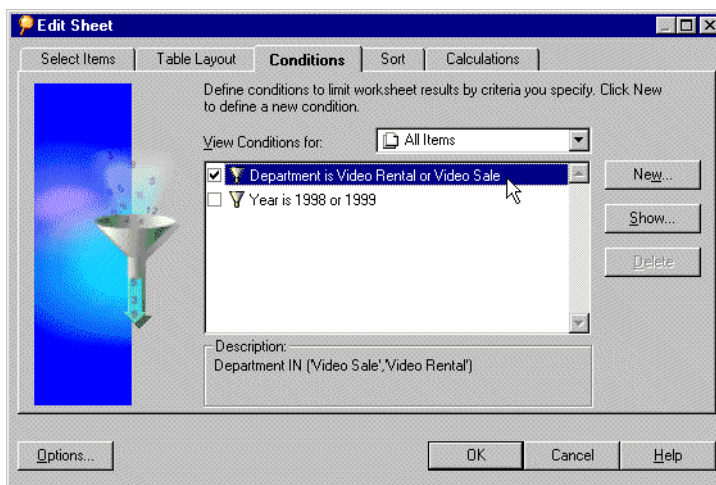
**Figure 7-13** *Edit Sheet Layout*



## 7.2.3 Editing the Conditions

Use the Conditions tab to edit the conditions on the worksheet. Select the conditions for the worksheet. Click to remove the checkmarks next to the conditions that you do *not* want as part of the worksheet. See [Section 5.5, "Finding Data that Meets Conditions"](#) for a complete description of conditions.

**Figure 7–14** *Edit Sheet Conditions*

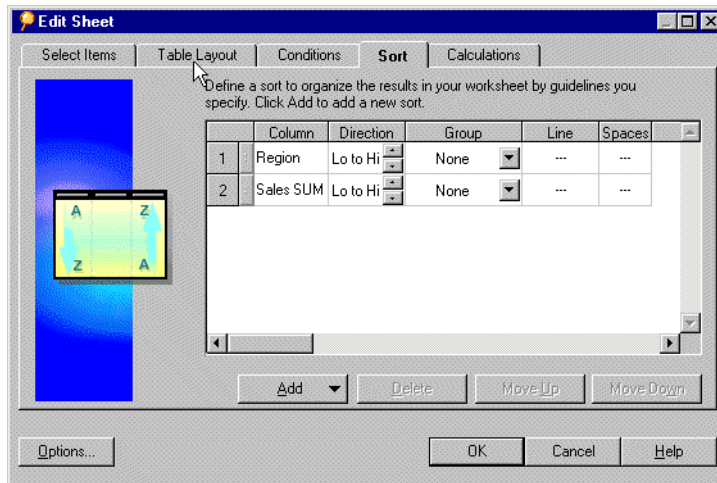


## 7.2.4 Editing the Sorting

Use the Sorting tab to change the conditions for sorting on a table. The sort information shows the current sorting applied to the worksheet. See [Section 4.3.1, "Sorting Data on Tables"](#) for a complete description of the sorting options for tables.

**Note:** The Sorting tab is only available for tabular worksheets.

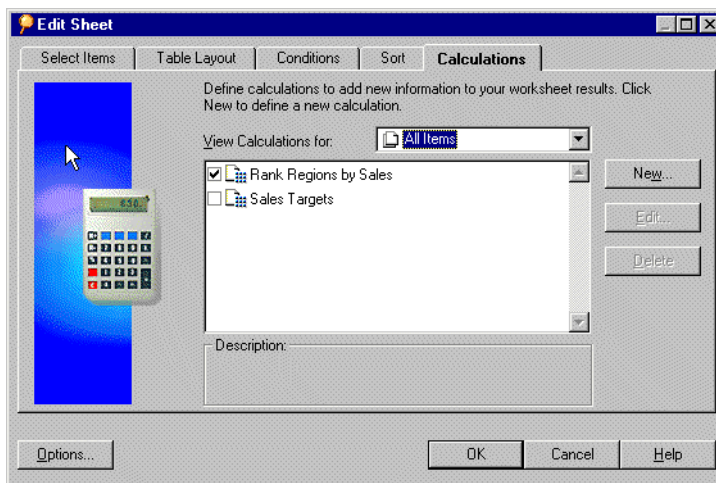
**Figure 7–15** Edit Sheet Sorting



## 7.2.5 Editing Calculations

Use the Calculation tab ([Figure 7-16](#)) to edit the calculations applied to the worksheet. The selected calculations are active for the worksheet. See [Section 8.3](#), "Creating Calculations" for a complete description of the calculations.

**Figure 7-16** *Edit Sheet Calculations*





# Part III

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## Advanced Concepts





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# Advanced Discoverer Desktop Features

Discoverer Desktop includes several advanced features for working with data. This chapter describes those features and explains how to use them.

The advanced features are:

- Retrieving Rows and Counting the Number of Rows
- Creating Parameters
- Creating Calculations
- Creating Advanced Conditions
- Setting Options
- Using Command Line Options
- Importing SQL

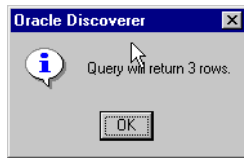
## 8.1 Retrieving All Rows and Counting the Number of Rows

Rows for tables are fetched from the database incrementally in groups. The number of rows in each group is specified in the Options dialog box based on the value set in the option “Retrieve data incrementally in groups of.” Click the Query Governor tab on the Options dialog box to see that option.

To override that setting you can retrieve all the rows at once instead of incrementally. Retrieving all rows applies only to tabular style reports.

- To retrieve all the rows at once instead of incrementally, choose **Sheet | Retrieve All Rows**. The table includes all the rows.
- To count the number of rows choose **Sheet | Count All Rows**.

**Figure 8–1** Number of Rows



The message shows the total number of rows that will be returned by the query. The number of rows may be greater than the actual number of rows currently displayed in the worksheet.

### 8.1.1 Refreshing the Worksheet

Refreshing a worksheet re-queries the database and displays the worksheet's data based on any new data. A primary use of refreshing a worksheet is when you're using Discoverer in conjunction with real-time data. For example, if the Discoverer worksheets query a database used for on-line transaction processing, you need to refresh the worksheet periodically to update the worksheet data with the latest transaction results.

To refresh a worksheet, choose **Sheet | Refresh Sheet**. Discoverer displays the worksheet results based on the updated data.

## 8.2 Creating Parameters

Parameters are placeholders used instead of specific values in the definition of a condition. Unlike regular conditions that find the same data each time they are applied, parameters offer choices at the time the data loads.

You can create Parameters at two levels:

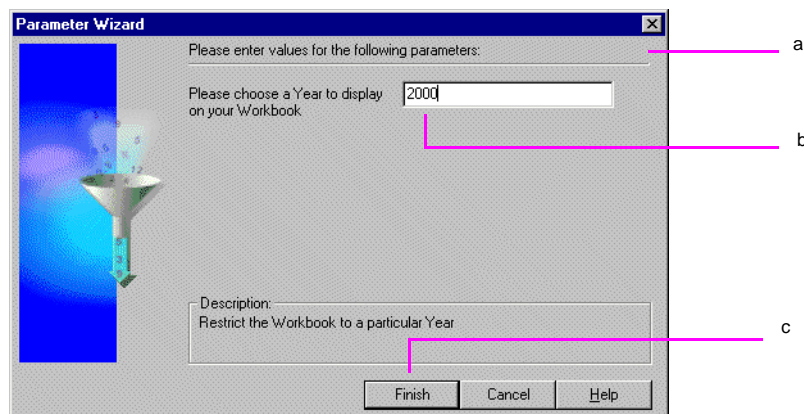
1. **Workbook level** - Here, the Parameter applies to all worksheets in your workbook. Changes to the Parameter in any worksheet cascade to all worksheets in the workbook.
2. **Worksheet level** - Here, the Parameter applies to the current worksheet only.

For example, suppose one of your routine analysis jobs is to compare sales performance by evaluating sales figures for various products from different groups of cities. By creating two parameters—one for products and the other for cities—you can select the specific grouping of data for the analysis at the time the worksheet loads.

Parameters are particularly helpful if several people use the same workbook or worksheet. Each person can select the parameters that load only the data of interest on the worksheet.

Parameter selections appear when loading a workbook or worksheet. Here's an example that shows a parameter for limiting the available data to a specific year, (2000).

**Figure 8-2** Sample Parameters for Video Sales



	Calendar Year	Region	Sales SUM	Rank Regions by Sales
	2000	Central	\$83,443	2
d	2000	East	\$135,625	3
	2000	West	\$63,321	1

**Key to Figure 8-2.**

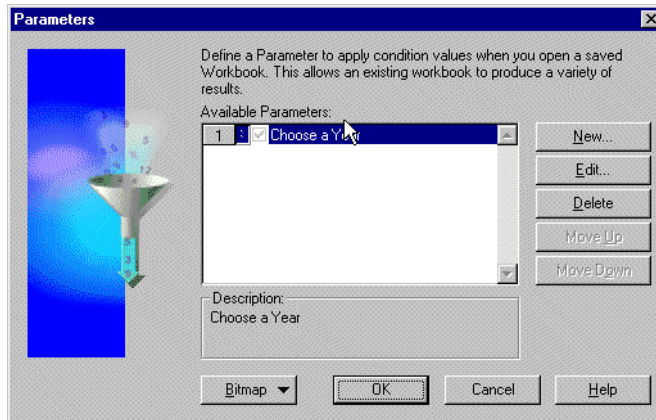
- This dialog box appears when loading a workbook or worksheet.
- Enter a Parameter in the text box, or select a value from the pull-down list by clicking on the down-arrow to the right of the text box and select a value.
- Choose Finish to load the Worksheet for the selected values.
- The Worksheet displays only data matching the value entered for the specified criteria.

To create a parameter:

1. Display the worksheet to which you want to apply the parameter.
2. Choose **Tools | Parameters**.

The Parameters dialog box opens. It shows the parameters already created.

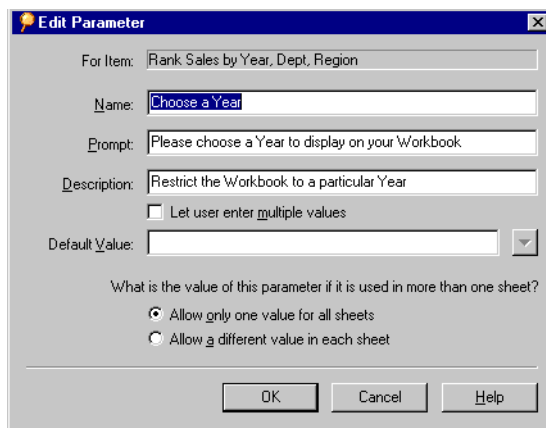
**Figure 8–3 Parameters Dialog Box**



3. Click **New**.

The New Parameter dialog box appears.

**Note:** You can also access this dialog box when creating advanced conditions. Select **New Parameter** from Value(s) drop-down list on the New Conditions dialog box.

**Figure 8–4** New Parameter Dialog Box

This is where you define new parameters.

**For Item**—select the item for the parameter from the drop-down list. The list shows the items currently available to the worksheet.

**Name**—the name of the Parameter, which appears on the list of available Parameters dialog.

**Create Condition with Operator**—creates a condition with an operator. You can select the operator from the drop-down list. For example, select equals (=) to create a condition with the formula “For Item” = “Parameter’s Name”.

**Prompt**—this text appears on the dialog box that opens prior to loading the worksheet; enter text that tells the person what to select.

**Description**—this text also appears on the dialog box that opens prior to loading the worksheet; it explains the parameter.

**Let User Enter Multiple Values**—select this option if you want the person using the worksheet to be able to select multiple values for the parameter when loading the worksheet. If this option is not selected, the person can choose only one value for the parameter.

**Default Value**—the pre-selected value for the parameter. Click the drop-down arrow and select a value from the list, or type the default value directly into the box.

**What is the value of this parameter if it is used in more than one sheet?**—allows you to create the Parameter either at Workbook level or Worksheet level.

Click 'Allow only one value for all Sheets' to make the parameter value cascade across all worksheets in the workbook. Click 'Allow a different value in each Sheet' to make the parameter value apply to the current worksheet only.

4. Click OK. The new parameter now appears on the Parameters dialog box.  
Moving the parameters up and down on the Parameters dialog box changes their position on the dialog box that appears when loading a worksheet. To add a picture to that dialog box, click **Bitmap** and choose **Set Bitmap**.
5. Click OK on the Parameters dialog box. Those parameters are now in force for the next time the worksheet is loaded.

Parameters are activated when used in an active condition. If you check the option "Create condition with operator" in the New Parameter dialog box, a new condition is created and activated, therefore the parameters are also activated.

To deactivate a parameter, deactivate the condition. Deleting the condition or deleting the parameter also deactivates the parameter.

To edit parameter values:

Here you display the Parameter dialog so that you can choose a different value to display on your worksheet(s).

1. Choose **Sheet | Edit Parameter Values**.

The Parameters dialog box appears.

2. Select the new value(s) for the Parameter.
3. Click OK.

The data on the worksheet is revised to meet the Parameter conditions.

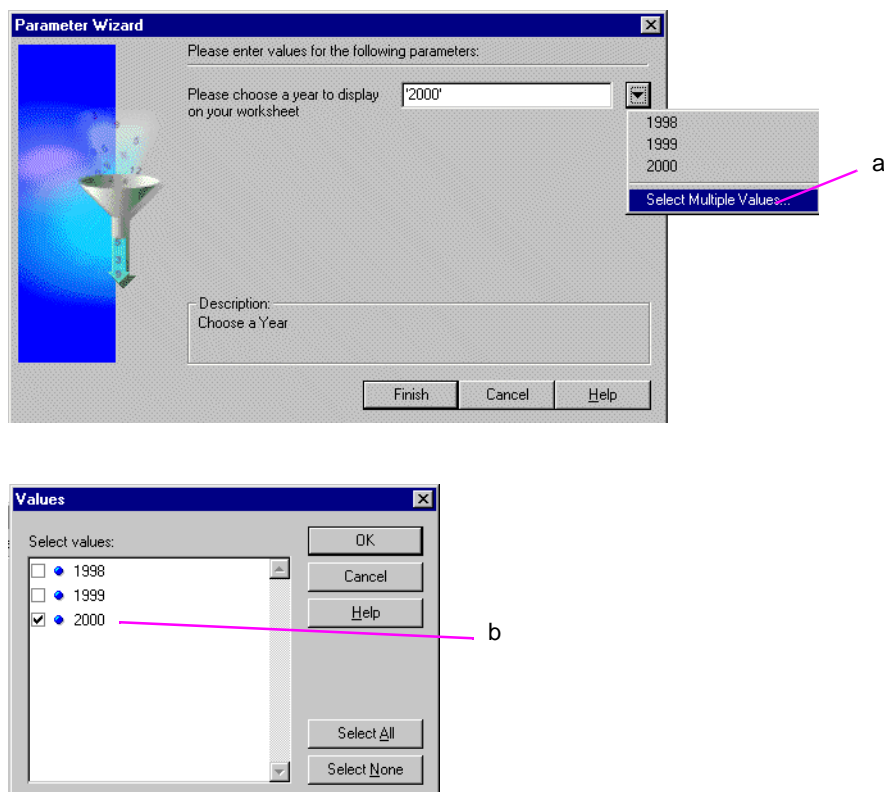
NOTE: If you want to change the Parameter value for your worksheet, you can also use the **Refresh** option to display the Parameter dialog for active Parameters.

## 8.2.1 Loading Multiple Values

If the option **Let User Enter Multiple Values** is selected for a worksheet's parameters, the person opening the worksheet can select multiple values for the parameter.

Here's an example:

**Figure 8–5** *Choosing Multiple Parameters*



**Key to Figure 8–5.**

- a. When you can load multiple values, the drop down list includes the option to **Select Multiple Values**.
- b. The Values dialog box displays a list of values that can be selected. Selected values are marked with a selected check box. Click **Select All** to select all values in the list.

## 8.3 Creating Calculations

Discoverer Calculations are used to analyze the data in your worksheets. Discoverer provides a comprehensive range of pre-defined functions for use in your Calculations.

Simple Calculations based on the data in a worksheet can produce typical business answers, such as sales commissions per salesperson, royalty fees paid to a supplier, and so on. Complex Calculations can find the answers to more complicated questions including “what if” scenarios.

In other words, instead of merely viewing your data to find trends and answers, you can use Calculations to rigorously analyze the data using mathematical techniques.

The results of Calculations are displayed as new columns on a worksheet, or the Calculations can be part of other Calculations.

You can also pivot Calculation Items to the page axis, just like other Items.

---

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**NOTE:** To see examples of how you can use Calculations to analyze your Discoverer data, refer to [Appendix](#) , "This appendix contains the following sections:".

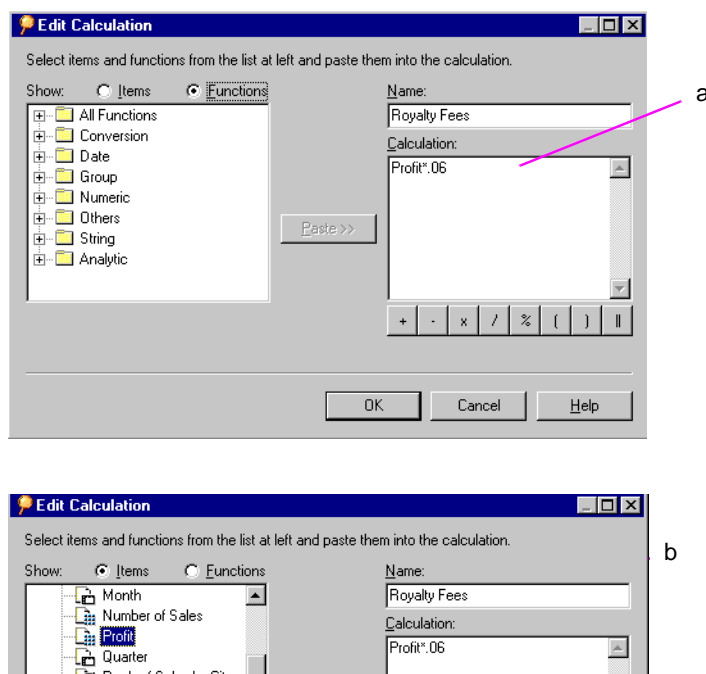
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Here is a sample of the results of a simple Calculation on a table:

**Figure 8–6 Sample Calculation**



**Key to Figure 8-6.**

- a. This is the dialog box that you use to define Calculations. The Calculation box is where you create the formula for the Calculation.
- b. After creating a Calculation, a new Item column is displayed on your Worksheet showing the calculated value. In this example, it shows the Profit SUM increased by 20%, ( $\text{Profit SUM} * 1.2$ ).

Calculations are based on items, not on individual data points. For example, you can multiply Profit SUM (an item) by a percentage to find a result for each product.

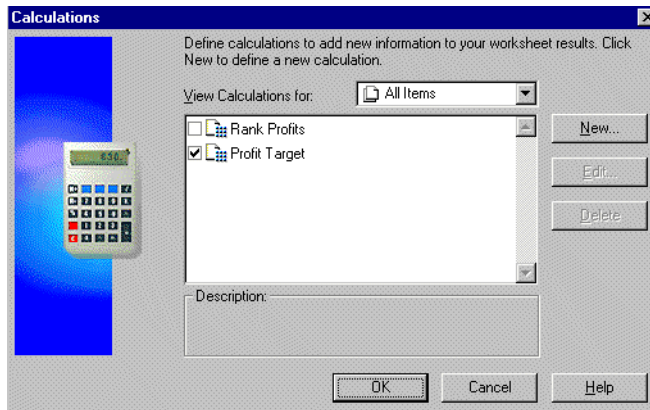
However, you cannot, for example, subtract Year 2000 profits from Year 1999 profits because 2000 and 1999 are data points in the item, Year. To calculate results based on individual data points, use Discoverer's Analytic Functions LAG and LEAD, (see [Appendix A.5.8, "Lag/Lead Function Examples"](#)).

To create a Calculation:

1. Display the worksheet on which you want to apply the Calculation.
2. Choose **Tools | Calculations**.

The Calculations dialog box appears.

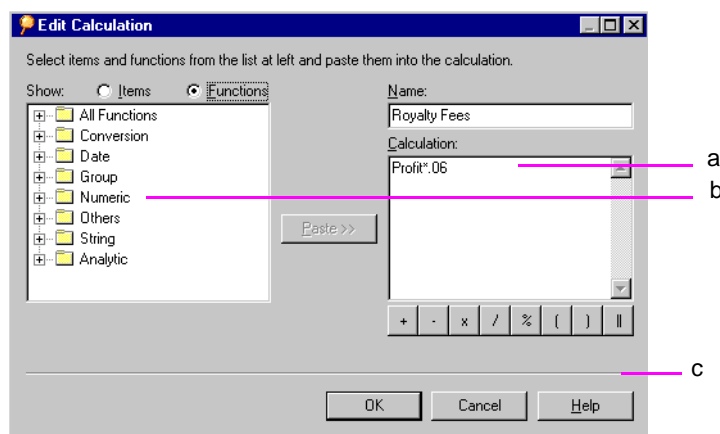
**Figure 8–7** *Calculations Dialog Box*



This dialog box shows Calculations already created for the worksheet. Selected Calculations (where the check box is selected) are active and apply to the worksheet.

3. Click **New**.

The Edit Calculation dialog box for creating a new Calculation appears.

**Figure 8–8** Edit Calculation Dialog Box**Key to Figure 8–8.**

- a. Calculation Box.
- b. Function Categories - you can build calculations using a pre-defined set of functions arranged into the categories.
- c. You can use these operators to build calculations.

To help you create the Calculation formula with a minimum of typing, you can:

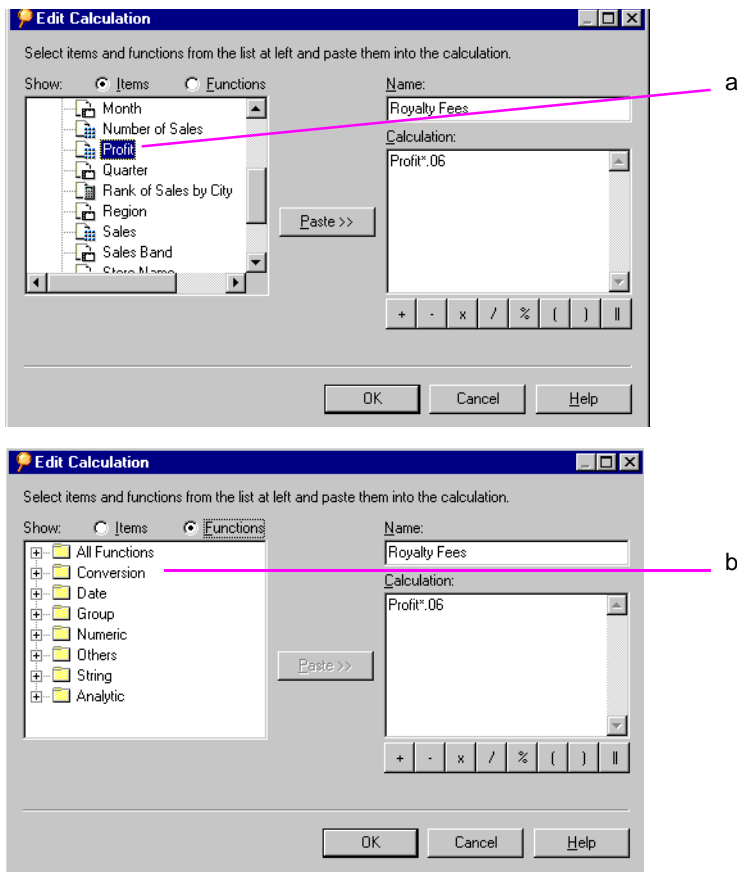
- Paste expressions from the box on the left to the box on the right.
- Add operators with the operator buttons.
- Type the new Calculation directly into the Calculation box.
- Mix typing with pasting and clicking the operators.

4. Click the **Show** button to see the different expressions.

**Items**—lists the items available to the worksheet. This is helpful because you don't have to remember the name of an item in order to include it in a formula. Parameters are also listed, and you can use the parameters in a formula as well.

**Functions**—lists a wide range of functions that you can apply to your formula.

**Figure 8–9 Calculations in the Edit Calculation Dialog Box**



**Key to Figure 8–9.**

- a. Select an Item then click Paste to copy the Item into the Calculation box.
  - b. Click the Functions button to show a list of function folders. To display a list of functions, click the plus symbol (+) next to each function folder. Use the Paste button to copy the selected Function into the Calculation box.
5. Click OK and then on the Calculation dialog box, click OK.

The Calculation is applied to the worksheet and results appear in a new column.

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Calculations use Oracle's standard syntax. See the *Oracle SQL Reference Language Reference Manual* for a complete description of the syntax.

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## 8.4 Creating Advanced Conditions

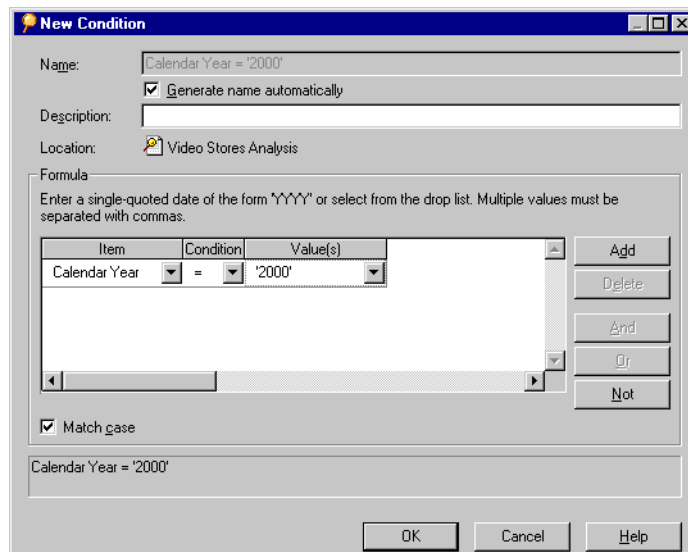
The advanced condition option allows you to build complex conditions for filtering your worksheet data.

To create an advanced condition:

1. On the Edit Condition dialog box, click the **Advanced** button.

The dialog box expands to show buttons to add and delete lines to the condition, and to include the Boolean operators (AND, OR, NOT).

**Figure 8–10** *New Condition Dialog Box*



The Item drop-down list shows the items currently available to the worksheet. Other options from the list are:

**Create Calculation**—click to open the New Calculation dialog box. When you finish creating the Calculation, it appears in the Item section of the condition.

For example, if you create a Calculation that computes a Royalty Fee, that Calculation is listed in the Item portion of the condition, and you can then filter the worksheet's data by the Calculation results.

**Select Condition**—displays a dialog box that lists the conditions currently defined for the worksheet. Select a condition to become the first part of the advanced conditional expression. With this option you can filter the data using several sequential conditions. That is, condition 1 filters the data, and then based on the results from condition 1, condition 2 filters the data.

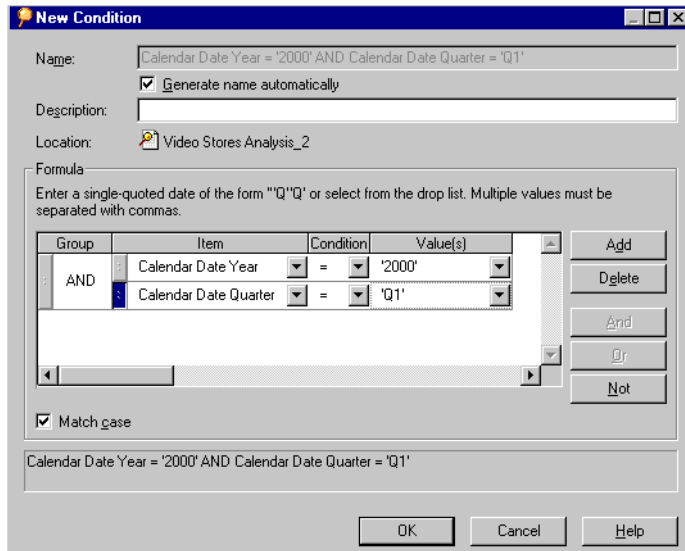
**Copy Condition**—displays a dialog box that lists the conditions currently defined for the worksheet. Copying a condition inserts it on the line in the New Condition dialog box. You can then edit it, or add other features.

2. To add another line to the condition, click **Add**.

By default, the two conditional expressions are grouped with the Boolean AND.

3. To change the grouping, click the AND in the expressions, and then click the Or or Not buttons.

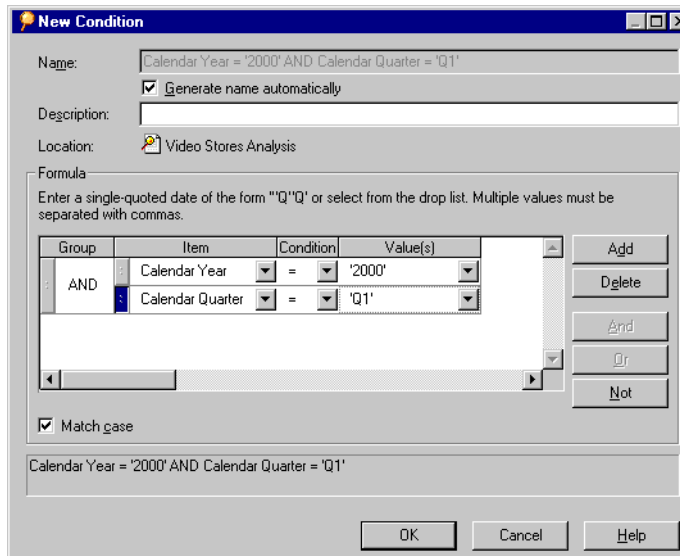
**Figure 8–11** Edit Condition Dialog Box with AND Conditions



**Note:** As you create the condition formula, the box at the bottom of the dialog box shows its SQL syntax.

4. Fill in the values for Item, Condition, and Value(s).  
To see options for the Value(s), click the drop-down arrow.

**Figure 8–12 New Condition Dialog Box with Values Displayed**



The values on the list correspond to the selected item in the condition. Other options are:

**Select Multiple Values**—displays a list of the values for the item. Click multiple values to include them in the values portion of the condition.

**Create Calculation**—click to open the Calculation dialog box. When you finish creating the Calculation, it appears in the Value(s) portion of the condition.

**Select Item**—displays a dialog box that lists the items currently defined for the worksheet. Select an item to become the value of the advanced conditional expression.

**Select Parameter**—displays a dialog box that lists the parameters currently defined for the worksheet. Select an parameter to become the value of the advanced conditional expression.

**New Parameter**—displays the Parameter dialog box, and you can create a parameter to be the value of the condition.

**Create Subquery**—displays a dialog box for creating a subquery as the value portion of the condition. See the next section for details.



**Edit Subquery**—this option only appears if you’re using a subquery to determine the value; the Edit Subquery dialog box appears so you can edit the previous selections for the subquery.

5. Click OK when the advanced condition is complete.

## 8.4.1 Creating Subqueries

A subquery for a condition uses a value that requires an intermediate step to determine the value. For example, suppose you want to create a condition that finds all the sales profits that exceed the median profit amount. The intermediate step is to find the median profit amount. Often, you create a separate worksheet to determine the intermediate value.

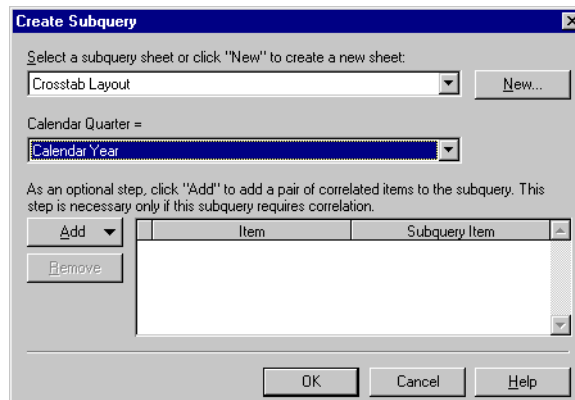
The subquery then identifies the intermediate value on its worksheet as the value for the condition.

To create a subquery:

1. Choose **Create Subquery** from the Values drop-down list on the New Condition dialog box. See [Figure 8–12](#) above.

The Create Subquery dialog box appears.

**Figure 8–13** Create Subquery Dialog Box



2. If you've already created a worksheet that contains the intermediate value, select it from the first drop-down list on the dialog box.

If you need to create a new worksheet that calculates the intermediate value, click the New button. The New Sheet dialog box appears so you can create a new worksheet for the value.

3. In the second drop-down list, select the original item to be used for the condition. For example, when finding sales profits that exceed the median, the item to select in the second drop-down list is profits.

See the next section for a description of correlated items.

4. Click OK. The name of the worksheet appears in the Values portion of the condition on the New Condition dialog box.

#### 8.4.1.1 Using Correlated Items

Correlated items add another dimension to a subquery. For example, suppose you want to find all the sales profits that exceed the median profit amount by department. The "by department" portion of the value is the new dimension to the subquery.

The items to correlate usually appear on both the original worksheet, and the worksheet used to create the intermediate value. For example, on the original worksheet you can find profit data for each department. On the worksheet for calculating the intermediate value, you can find a median value for each department. Correlating the two items matches them so each department median value corresponds to each department profit value.

Correlating items is also necessary when the worksheet for determining the intermediate value has additional values on it. Correlating makes sure the condition uses the correct intermediate values for the items.

As stated on the dialog box, you don't need to use the features for correlated items if the subquery does not include the extra dimension provided by items that correlate to one another.

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**NOTE:** Correlated Subqueries cannot contain filters using Oracle Analytical Functions. For example, if you restrict the values returned in a sheet to the top twenty items (assigned using a Rank function), you cannot use this sheet in a correlated subquery.

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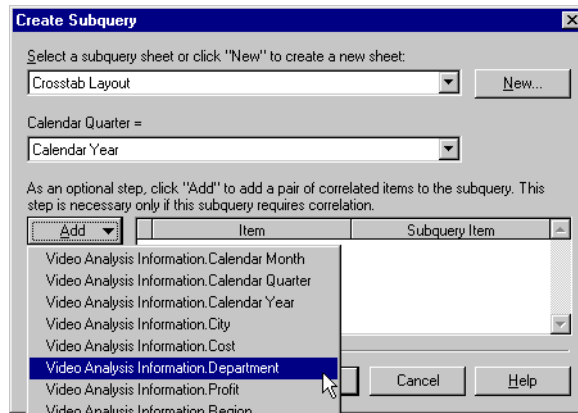
To use correlated items:

1. Click the Add button on the Edit Subquery dialog box.
2. Choose the item from the Add drop-down list.

The following figure shows an example.

The item then appears in the box for correlated items.

**Figure 8–14** Correlated Items for a Subquery



The Item column refers to the item on the original worksheet. The Subquery Item column refers to the item on the worksheet used to determine the intermediate value.

Normally you correlate the same item on each worksheet, but you can also correlate two different items. To correlate different items, choose the new item from the Subquery Item drop-down list.

3. To add additional dimensions to the list of correlated items, click the Add button again and repeat the process.

To remove an item from the correlation list, select it and click the Remove button.

4. Click OK.

---

---

When creating a new workbook, do not create worksheets for sub-queries as part of the new workbook process. Instead, finish creating the new workbook first, and then create worksheets for the sub-queries. This ensures that you can select the proper worksheets for the sub-queries from the Conditions dialog box.

---

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## 8.4.2 Editing a Subquery

If you change the worksheet that is used to generate the intermediate value for a subquery, the subquery condition is not automatically updated. You must edit the condition with the subquery first, and then update subquery to match the changed worksheet.

To edit a subquery:

1. Edit the condition with the subquery.
2. Choose **Edit Subquery** from the Values drop-down list on the Edit Condition dialog box.

A prompt asks if you want to update the subquery to match the changed worksheet.

3. Update the subquery.

The edited subquery and the changed worksheet now match.

## 8.5 Setting Options

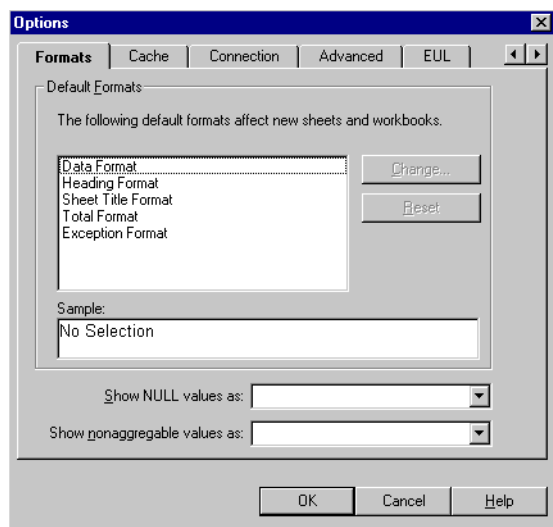
The Options dialog box offers a wide variety of options for setting operating features, formatting, and other aspects of your worksheets.

To select options:

1. Choose **Tools | Options**, or click the Options button available on several dialog boxes.

The Options dialog box appears.

Figure 8–15 Options Dialog Box



The tabs across the top of the dialog box list the different option categories. If you accessed the dialog box by clicking the Options button on another dialog box, the tabs across the top may only apply to that dialog box.

2. Click a tab to see its options. To see additional tabs, click the right or left arrows at the top right side of the dialog box.

**General**—displays options for viewing different types of files, and for opening workbooks. Click the Viewer check boxes if the worksheets include files with videos, images, and sound (audio). Those viewers open automatically from within Discoverer to run the files.

**Query Governor**—displays options for maximizing the efficiency of working with larger worksheets, limiting the amount of time a query runs, and limiting the number of rows retrieved. You can also choose whether to use Summary data to improve the performance of Discoverer.

**Table/Crosstab**—displays options for the overall table or crosstab layout; you can add or remove gridlines, column headings, row numbering, and so forth. Removing various table or crosstab features is particularly helpful when

printing a worksheet as a report. Tab options differ according to whether your worksheet is a Tabular or Crosstab worksheet.

**Formats**—displays options for setting the default formats for worksheet headings, data, titles, totals, exceptions, and null values. To change a format, select it and click the **Change** button. The dialog box for setting the font, color, and backgrounds appears.

**Cache**—displays options for the memory cache, disk cache, and cache directory for Discoverer. Generally these options should not be changed without assistance from the database administrator.

**Connection**—displays options for setting the EUL types that can be used.

**Advanced**—displays options for configuring Automatic Querying, Fan-trap Detection, and Multiple Join Path Detection. When you open Workbooks, Discoverer can run queries automatically or not, or can request confirmation before running queries.

**EUL**—displays the default EUL setting. Use the option on this tab to select a default EUL (End User Layer). Check with your database administrator for the correct EUL to select.

## 8.6 Using Command-Line Options

You can run Discoverer from the command line and perform a limited number of tasks automatically, for example, opening or printing a Workbook.

To use command-line options, type the command string for starting Discoverer, following by a command-line option, (see table 8-1 below).

To run a command line option:

1. From the Windows Start menu, choose Run.

The Run dialog box appears.

2. Type:

```
<drive>\orant\discv902\dis5usr.exe /connect me/mypassword@mydatabase  
<option>
```

Where 'me' is your Discoverer ID, 'mypassword' is your Discoverer password, and 'mydatabase' is the Oracle database to which you want to connect, (see your Oracle Administrator for connect details).

**Table 8–1 Sample Command Line Options**

Option	Action	Effects	Notes
/open <file>	Open a .DIS file	Opens a workbook from a file.	Skips the Connect dialog box and open the workbook.
/p <file>	Print a Workbook	Prints workbook from the file to the default printer.	Print options are saved as part of the workbook.
/sheet ALL	Activate all sheets	Runs queries for all sheets in the workbook.	When the workbook opens all queries on all sheets are already run.

For example, to open a file Reports.DIS in your root directory, type:

```
<drive>\orant\discv902\dis5usr.exe /connect me/mypassword@mydatabase
/open c:\Reports.DIS
```

To print a file Reports.DIS in your root directory, type:

```
<drive>\orant\discv902\dis5usr.exe /connect me/mypassword@mydatabase
/print c:\Reports.DIS
```

## 8.7 Using SQL

If you are familiar with SQL, you can analyze the SQL statements that Discoverer executes against the database. You can also open workbooks with your own SQL programming statements.

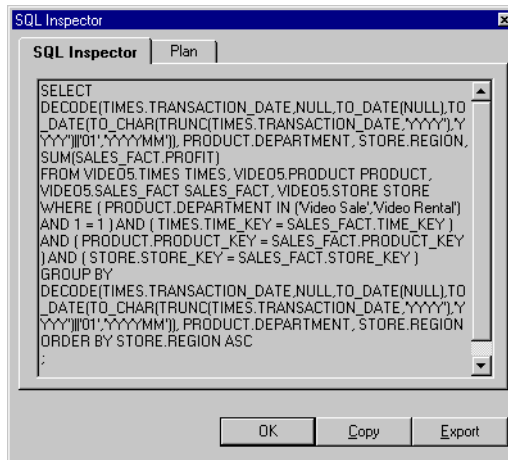
### 8.7.1 Looking at the SQL Statements for Worksheets

To see a worksheet's SQL statements:

1. Choose **View | SQL Inspector**.

The SQL Inspector dialog box appears. It shows the SQL statements used to create your current worksheet.

**Figure 8–16** SQL Inspector Dialog



2. Click **Copy** to copy the statements and paste them to another SQL program.

The SQL statements Discoverer uses to open a workbook or worksheet involve complex programming. Therefore, you cannot simply copy a worksheet's SQL and use it to open another workbook or worksheet. You must write your own programs.

3. Click **Export** to export the statements to another file for use later with another SQL program.



4. Click **OK** to close the SQL Inspector dialog box.

## 8.7.2 Importing SQL

If you have written an SQL program to open a workbook, importing the program executes the SQL statement and opens the Discoverer workbook.

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**NOTE:** If you are importing an SQL script that contains join definitions, the joins must have been created first by your Discoverer manager using Discoverer Administrator.

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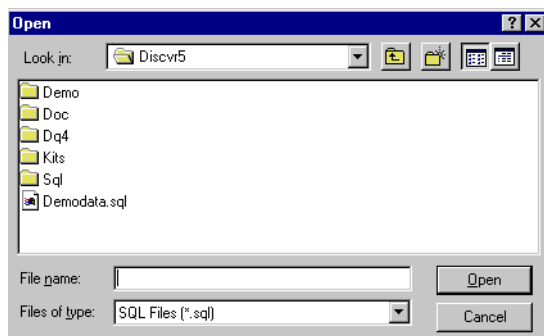
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To import SQL and open a workbook:

1. Choose **File | Import SQL**.

The Open dialog box appears.

**Figure 8–17** Open SQL File Dialog



2. Locate and select the file that contains the SQL statement, then click **Open**.

A new workbook is then created from the query defined by the SQL statement.

## 8.7.3 Using the Discoverer Execution Plan

The **Plan** tab displays the Oracle Server Execution Plan chosen by the Oracle Server for a query request. The Execution Plan defines the sequence of operations that the Oracle Server performs to execute the SQL statement. This facility is useful when using Summary tables and Materialized Views.

### 8.7.3.1 About Summaries

Summary tables and Materialized Views store precomputed aggregated data, which is used where possible instead of data retrieved directly from the database. Because Summary tables and Materialized Views are much quicker to access, this enhances the performance of Discoverer.

Summary Management is handled automatically by Discoverer, and is transparent to most Discoverer users. However, you may wish to use the SQL Inspector feature to look at SQL statements being generated. For example, when using Summaries, you may wish to check that a query is using a Summary or Materialized View created by your Discoverer manager.

### 8.7.3.2 Types of Summary

Summaries are created by your Discoverer manager to help do your work more quickly and efficiently.

Two types of Summary are used:

- A **Summary** table is a table created by Discoverer.
- A **Materialized View** is the Oracle 8.1.6+ database server's own summary mechanism.

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**NOTE:** For more information on Summaries and Materialized Views, see **Oracle8i Data Warehousing Guide Release 2 (8.1.6)** (Part Number A76994-01).

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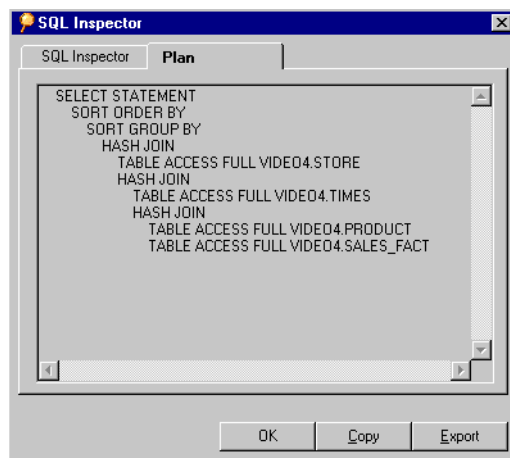
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## 8.7.4 Looking at an SQL Execution Plan

To see a worksheet's Execution Plan:

1. Choose **View | SQL Inspector**.  
The SQL Inspector dialog appears.
2. Click the **Plan** tab.

**Figure 8–18** SQL Inspector Dialog - Plan Tab



## 8.7.5 Viewing the SQL and Execution Plan with an 8.1.6+ database

When running Discoverer against an Oracle 8.1.6+ database, the server controls query redirection by rewriting the SQL to use a Materialized View. If a server rewrite occurs, the server Execution Plan indicates the Materialized View name.

You can use the **Plan** tab in the **SQL Inspector** dialog to see the SQL statement that Discoverer sends to the server.

**Figure 8–19** SQL Inspector tab displaying an SQL statement

The screenshot shows the Oracle Discoverer interface. The main window displays a table with columns: City, Region, and Profit SUM. The data is as follows:

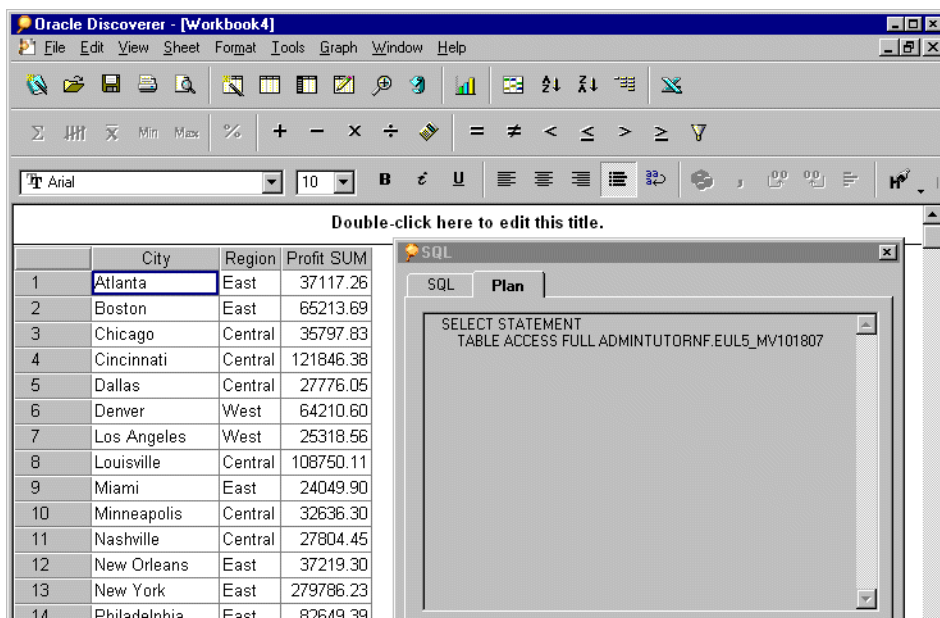
	City	Region	Profit SUM
1	Atlanta	East	37117.26
2	Boston	East	65213.69
3	Chicago	Central	35797.83
4	Cincinnati	Central	121846.38
5	Dallas	Central	27776.05
6	Denver	West	64210.60
7	Los Angeles	West	25318.56
8	Louisville	Central	108750.11
9	Miami	East	24049.90
10	Minneapolis	Central	32636.30
11	Nashville	Central	27804.45
12	New Orleans	East	37219.30
13	New York	East	279786.23
14	Philadelphia	East	82649.39
15	Phoenix	West	27486.59
16	Pittsburgh	East	61942.21
17	San Francisco	West	128740.29
18	Seattle	West	126440.30

An SQL Inspector dialog box is open, showing the SQL statement:

```
SELECT i100796 as E100796,i100797 as E100797,SUM(i100791) as E100791_SUM
FROM ( SELECT COST AS i100789, CUSTOMER_COUNT AS i100790, PRODUCT_KEY AS i100785, PROFIT AS i100791, SALES AS i100787, STORE_KEY AS i100786, TIME_KEY AS i100784, UNIT_SALES AS i100788, SALES/CUSTOMER_COUNT AS i101660 FROM VIDEOS.SALES_FACT ) o100783,
( SELECT STORE_KEY AS i100794, STORE_NAME AS i100795, CITY AS i100796, REGION AS i100797, FLOOR_PLAN_TYPE AS i100798, STORE_SIZE AS i100799, REPORTS AS i100800 FROM VIDEOS.STORE ) o100793
WHERE ((i100794 = i100786))
GROUP BY i100796, i100797;
```

Although the Discoverer manager has created a Summary for the Items City, Region, and Profit SUM, the SQL statement displayed in the SQL Inspector SQL tab does not indicate that a Summary, (in this case a Materialized View) is being used, see [Figure 8–19](#) above).

**Figure 8–20** Plan tab displaying the Execution Plan (using a Materialized View)

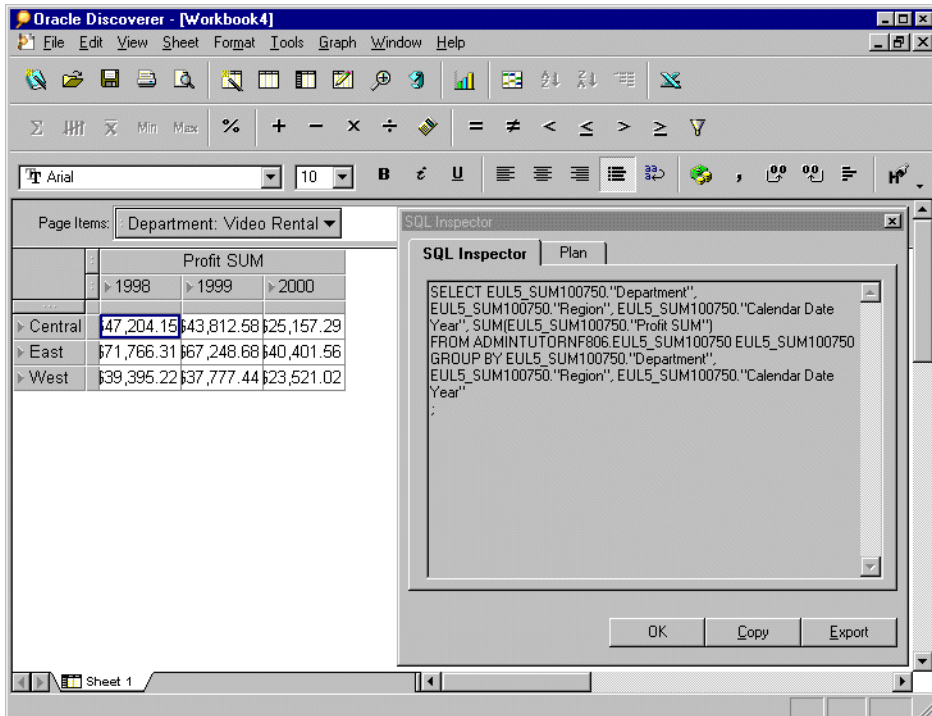


In [Figure 8–20](#), you can see from the SQL Inspector **Plan** tab that a Materialized View Summary is being used by the database, identified by the table name `EUL5_MV<Summary Identifier>`.

### 8.7.6 Viewing SQL with a pre-8.1.6 database (not using a Materialized View)

When running against a pre-8.1.6 database Discoverer controls redirection to a summary table. The SQL can be viewed at the **SQL** tab and the server Execution Plan can be viewed on the **Plan** tab in the **SQL Inspector** dialog in Discoverer Desktop.

[Figure 8–21](#) shows a crosstab worksheet of items from the Video Analysis folder (created as part of the Video Stores and the resulting SQL statement in the **SQL Inspector** dialog. The SQL statement shows that the summary table `EUL5_SUM100750` is referenced.

**Figure 8-21 Summary Redirection in Progress**

The screenshot shows the Oracle Discoverer Desktop interface. The main window displays a summary redirection in progress for the Department: Video Rental. The data is presented in a table with columns for Year (1998, 1999, 2000) and rows for Region (Central, East, West). The SQL Inspector window is open, showing the SQL query used for the summary.

	Profit SUM		
	1998	1999	2000
Central	47,204.15	43,812.58	25,157.29
East	71,766.31	67,248.68	40,401.56
West	39,395.22	37,777.44	23,521.02

```
SELECT EUL5_SUM100750."Department",
EUL5_SUM100750."Region", EUL5_SUM100750."Calendar Date
Year", SUM(EUL5_SUM100750."Profit SUM")
FROM ADMINUTORNPF806.EUL5_SUM100750 EUL5_SUM100750
GROUP BY EUL5_SUM100750."Department",
EUL5_SUM100750."Region", EUL5_SUM100750."Calendar Date
Year"
;
```

Discoverer Desktop automatically chooses the most appropriate Summary Table to process your query efficiently.

Figure 8–22 shows the same worksheet as before after the user has drilled down from Year to Month. Notice that Discoverer Desktop has redirected the second part of the query to EUL5\_SUM100775 instead of EUL5\_SUM100750.

**Figure 8–22 Summary Redirection in Progress**

The screenshot shows the Oracle Discoverer Desktop interface. The main window displays a PivotTable titled "Profit SUM" for the Department "Video Rental". The PivotTable is structured as follows:

	Profit SUM								
	> 1998	> 1999	> 2000	> Jan	> Feb	> Mar	> Apr	> May	> Jun
> Central	\$47,204.15	\$43,812.58	\$4,886.55	\$3,736.30	\$3,446.32	\$5,703.43	\$3,704.77	\$3,679.92	
> East	\$71,766.31	\$67,248.68	\$7,723.25	\$6,325.47	\$5,372.19	\$8,643.21	\$6,588.05	\$5,749.39	
> West	\$39,395.22	\$37,777.44	\$4,813.60	\$3,561.18	\$2,988.29	\$5,434.32	\$3,457.50	\$3,266.13	

Below the PivotTable, the SQL Inspector window is open, displaying the following SQL query:

```

SELECT EUL5_SUM100750."Department", EUL5_SUM100750."Region",
EUL5_SUM100750."Calendar Date Year", SUM(EUL5_SUM100750."Profit
SUM")
FROM ADMINTUTORNF806.EUL5_SUM100750 EUL5_SUM100750
GROUP BY EUL5_SUM100750."Department", EUL5_SUM100750."Region",
EUL5_SUM100750."Calendar Date Year"
.
SELECT EUL5_SUM100774."Department", EUL5_SUM100774."Region",
EUL5_SUM100774."Calendar Date Month", EUL5_SUM100774."Calendar Date
Year", SUM(EUL5_SUM100774."Profit SUM")
FROM ADMINTUTORNF806.EUL5_SUM100774 EUL5_SUM100774
WHERE ( EUL5_SUM100774."Calendar Date Year" =
TO_DATE('20000101000000','YYYYMMDDHH24MISS') )
GROUP BY EUL5_SUM100774."Department", EUL5_SUM100774."Region",
EUL5_SUM100774."Calendar Date Month", EUL5_SUM100774."Calendar Date
Year"
.

```

Figure 8–23 shows the same worksheet again. This time the user has drilled down from Region to City. Again, Discoverer Desktop automatically chooses the most efficient Summary Tables for each part of the query.

**Figure 8–23 Summary Redirection in Progress**

The screenshot shows the Oracle Discoverer Desktop interface. The main window displays a PivotTable titled "Profit SUM" for the Department "Video Rental". The data is organized by Year (1998) and then by Month (Jan to Sep). The rows are categorized by City: Central, Chicago, Cincinnati, Dallas, Louisville, Minneapolis, Nashville, St. Louis, East, and West. The cell for Central in January is highlighted with a blue border and contains the value \$3,996.32. An "SQL Inspector" window is overlaid on the table, showing the SQL query used to generate the data. The query is a complex join of summary tables from different regions to drill down to the city level.

		Profit SUM								
		1998								
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Central		\$3,996.32	\$3,654.58	\$3,910.11	\$3,615.98	\$4,174.30	\$3,365.88	\$3,622.95	\$4,312.08	\$3,359.92
Chicago		\$271.56	\$249.87	\$342.81	\$269.67	\$290.46	\$242.64	\$319.88	\$319.73	\$193.41
Cincinnati									\$1,217.73	\$861.19
Dallas									\$253.45	\$192.93
Louisville									\$1,211.85	\$827.36
Minneapolis									\$365.99	\$279.58
Nashville									\$354.30	\$287.39
St. Louis									\$599.03	\$718.04
East									\$6,162.32	\$6,064.01
West									\$3,568.13	\$3,011.12

```

SELECT EUL5_SUM100750."Department", EUL5_SUM100750."Region",
EUL5_SUM100750."Calendar Date Year", SUM(EUL5_SUM100750."Profit
SUM")
FROM ADMINTUTORNF806.EUL5_SUM100750 EUL5_SUM100750
GROUP BY EUL5_SUM100750."Department", EUL5_SUM100750."Region",
EUL5_SUM100750."Calendar Date Year"
;
SELECT EUL5_SUM100801."City", EUL5_SUM100801."Department",
EUL5_SUM100801."Region", EUL5_SUM100801."Calendar Date Year",
SUM(EUL5_SUM100801."Profit SUM")
FROM ADMINTUTORNF806.EUL5_SUM100801 EUL5_SUM100801
WHERE ( EUL5_SUM100801."Region" = 'Central' )
GROUP BY EUL5_SUM100801."City", EUL5_SUM100801."Department",
EUL5_SUM100801."Region", EUL5_SUM100801."Calendar Date Year"
;
SELECT EUL5_SUM100801."City", EUL5_SUM100801."Department",
EUL5_SUM100801."Region", EUL5_SUM100801."Calendar Date Month",

```



## 8.7.7 Configuring the SQL type used

Discoverer uses Inline Views in its SQL generation. This SQL has Inline Views removed to make external editing easier - this process is also known as 'flattening'. When you use the SQL Inspector dialog, typically you are looking at SQL with the Inline Views removed, (or flattened SQL).

If you are using an ODBC connection, ODBC SQL is created. To set the default variant, there is registry entry called HKEY\_CURRENT\_USER\Software\Oracle\Discoverer 5\Database\SQLType.

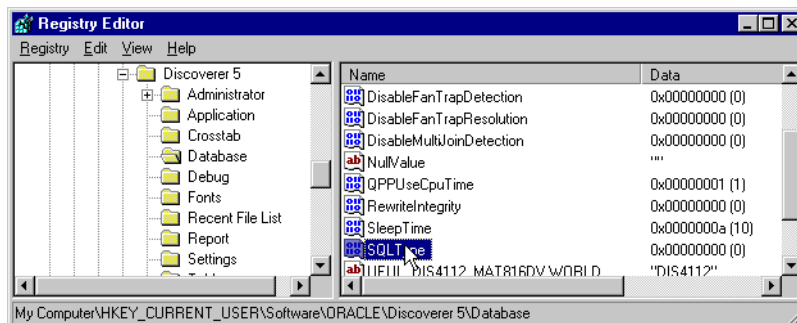
Set this value to configure how SQL is displayed in the SQL Inspector dialog. The valid values for this entry are 0, 1 and 2, used as follows:

- 0 - Show SQL with no Inline Views (flattened SQL). This is the default.
- 1 - Show ODBC compliant SQL.
- 2 - Show SQL with Inline Views.

To configure the SQLType registry setting:

1. From the Windows Start menu, choose **Run**.
2. Type **regedit** then choose **OK**.
3. Navigate to the registry setting in:  
HKEY\_CURRENT\_USER\Software\Oracle\Discoverer 5\Database\SQLType

**Figure 8-24** Setting the SQLType Registry Setting



4. Double click on SQLType, change the setting as required to either 0, 1, or 2, (see notes above), then click **OK**.

## 8.7.8 Exporting SQL without running a Workbook

You can export Workbook SQL from the command line, without running Discoverer. Refer to the Command Line Interface section of the *Discoverer Administrator Administration Guide* for more details, or contact your Discoverer manager.

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## Calculation Examples

This appendix contains the following sections:

- Simple Calculation Examples
- Analytic Function Examples
- More about the Analytic Function Template
- Analytic Functions and Sequencing

### A.1 Getting More Information

For more information about Analytic Functions, and Oracle functions in general, refer to the following Oracle publications:

- Oracle *8i* SQL Reference Release 2 (8.1.6) - Part Number A76989-01
- Oracle *8i* Data Warehousing Guide Release 2 (8.1.6) - Part Number A76994-01

### A.2 About the examples in this chapter

The examples in the following sections use the **Video Stores Tutorial**.

### A.3 Additional formatting

The examples in this chapter use the following additional formatting:

- Currency is displayed with no decimal places, and is prefixed with a Dollar sign (\$).
- Integers are displayed with no decimal places. For example, Ranks.

## A.4 Simple Calculation Examples

This section provides the following examples to help you create Calculations.

- A.4.1 Calculate the number of rows returned by a query
- A.4.2 Calculate a 25% increase in sales
- A.4.3 Convert text to upper-case

---



---

**NOTE:** For more information on how to create Calculations, refer to Section 8.3, “Creating Calculations.”.

---



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### A.4.1 Calculate the number of rows returned by a query

This example calculates the number of rows returned by a query.

**Table A–1** *Workbook configuration for ‘Calculate the number of rows returned by a query’*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM																																			
<b>Sort Order</b>	Year, Region, City																																			
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central																																			
<b>Calculation Name</b>	<b>Rows returned</b>																																			
<b>Calculation</b>	ROWCOUNT																																			
<b>Notes</b>	ROWCOUNT does not count NULL values. To calculate the number of rows returned by a query, <i>including</i> NULL values, first create a <i>temporary</i> item <b>One record</b> , (Calculation = ‘1’). Then, create a Calculation <b>Rows returned</b> to count the occurrences of <b>One record</b> , (SUM(Video Sales Analysis.One record))																																			
<b>Display Data</b>	<table border="1"> <thead> <tr> <th>Year</th> <th>Region</th> <th>City</th> <th>Sales SUM</th> <th>Rows returned</th> </tr> </thead> <tbody> <tr> <td>2000</td> <td>Central</td> <td>Cincinnati</td> <td>\$45,758</td> <td>1189</td> </tr> <tr> <td></td> <td></td> <td>Louisville</td> <td>\$35,896</td> <td>1019</td> </tr> <tr> <td></td> <td></td> <td>St. Louis</td> <td>\$22,041</td> <td>580</td> </tr> <tr> <td></td> <td></td> <td>Chicago</td> <td>\$10,116</td> <td>284</td> </tr> <tr> <td></td> <td></td> <td>Minneapolis</td> <td>\$9,820</td> <td>273</td> </tr> <tr> <td></td> <td></td> <td>Nashville</td> <td>\$8,345</td> <td>214</td> </tr> </tbody> </table>	Year	Region	City	Sales SUM	Rows returned	2000	Central	Cincinnati	\$45,758	1189			Louisville	\$35,896	1019			St. Louis	\$22,041	580			Chicago	\$10,116	284			Minneapolis	\$9,820	273			Nashville	\$8,345	214
Year	Region	City	Sales SUM	Rows returned																																
2000	Central	Cincinnati	\$45,758	1189																																
		Louisville	\$35,896	1019																																
		St. Louis	\$22,041	580																																
		Chicago	\$10,116	284																																
		Minneapolis	\$9,820	273																																
		Nashville	\$8,345	214																																

## A.4.2 Calculate a 25% increase in sales

This example calculates a 25% increase in sales figures.

**Table A–2** *Workbook configuration for 'Calculate a 25% increase in profits'*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM				
<b>Sort Order</b>	Year, Region, City				
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central				
<b>Calculation Name</b>	<b>25% Increase</b>				
<b>Calculation</b>	Sales SUM * 1.25				
<b>Display Data</b>	<b>Year</b>	<b>Region</b>	<b>City</b>	<b>Sales SUM</b>	<b>25% Increase</b>
	2000	Central	Chicago	\$10,116	\$12,645
			St. Louis	\$22,041	\$27,551
			Nashville	\$8,345	\$10,431
			Louisville	\$35,896	\$44,870
			Minneapolis	\$9,820	\$12,275
			Dallas	\$7,749	\$9,686
			Cincinnati	\$45,758	\$57,198

### A.4.3 Convert text to upper-case

As well as the extensive range of mathematical functions available in Discoverer, you also have access to a wide range of number and text formatting functions. This example uses a Calculation to re-format **City** text data to upper-case.

**Table A-3** *Workbook configuration for 'Convert City text to upper-case'*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM																																												
<b>Sort Order</b>	Year, Region																																												
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central																																												
<b>Calculation Name</b>	<b>City(Upper Case)</b>																																												
<b>Calculation</b>	UPPER(City)																																												
<b>Display Data</b>	<table border="1"> <thead> <tr> <th>Year</th> <th>Region</th> <th>City</th> <th>Sales SUM</th> <th>City (Upper Case)</th> </tr> </thead> <tbody> <tr> <td>2000</td> <td>Central</td> <td>Chicago</td> <td>\$10,116</td> <td>CHICAGO</td> </tr> <tr> <td></td> <td></td> <td>Cincinnati</td> <td>\$45,758</td> <td>CINCINNATI</td> </tr> <tr> <td></td> <td></td> <td>Dallas</td> <td>\$7,749</td> <td>DALLAS</td> </tr> <tr> <td></td> <td></td> <td>Louisville</td> <td>\$35,896</td> <td>LOUISVILLE</td> </tr> <tr> <td></td> <td></td> <td>Minneapolis</td> <td>\$9,820</td> <td>MINNEAPOLIS</td> </tr> <tr> <td></td> <td></td> <td>Nashville</td> <td>\$8,345</td> <td>NASHVILLE</td> </tr> <tr> <td></td> <td></td> <td>St. Louis</td> <td>\$22,041</td> <td>ST. LOUIS</td> </tr> </tbody> </table>					Year	Region	City	Sales SUM	City (Upper Case)	2000	Central	Chicago	\$10,116	CHICAGO			Cincinnati	\$45,758	CINCINNATI			Dallas	\$7,749	DALLAS			Louisville	\$35,896	LOUISVILLE			Minneapolis	\$9,820	MINNEAPOLIS			Nashville	\$8,345	NASHVILLE			St. Louis	\$22,041	ST. LOUIS
Year	Region	City	Sales SUM	City (Upper Case)																																									
2000	Central	Chicago	\$10,116	CHICAGO																																									
		Cincinnati	\$45,758	CINCINNATI																																									
		Dallas	\$7,749	DALLAS																																									
		Louisville	\$35,896	LOUISVILLE																																									
		Minneapolis	\$9,820	MINNEAPOLIS																																									
		Nashville	\$8,345	NASHVILLE																																									
		St. Louis	\$22,041	ST. LOUIS																																									

## A.5 Analytic Function Examples

Oracle Discoverer supports the Analytic Functions that are included in Oracle Server 8.1.6 and above. Discoverer also *extends* the functionality of standard SQL by allowing you to nest Analytic Functions. You can use these advanced functions to perform sophisticated analysis on your data.

This section contains the following sub-sections:

- A.5.1 Analytic Function Categories
- A.5.2 Calculations and Drilling Into and out of data
- A.5.3 About The Analytic Function Template
- A.5.4 Ranking Function Examples
- A.5.5 Banding Function Examples
- A.5.6 Windowing Function Examples
- A.5.7 Reporting Function Examples
- A.5.8 Lag/Lead Function Examples
- A.5.9 Statistical Function Examples
- A.6 More about the Analytic Function Template
- A.7 Analytic Functions and Sequencing

## A.5.1 Analytic Function Categories

Analytic Functions are classified in the following categories:

- **Ranking** - Address business questions like: 'What are the top 10 and bottom 10 salespeople per region?'
- **Banding** - Address business questions like 'What brands make up 25% of sales?'
- **Windowing** - Address business questions like 'What is the 13-week moving average of a stock price?' or 'What is the cumulative sum of sales per region?'
- **Reporting Aggregates** - After a query has been processed, aggregate values like the number of resulting rows, or the sum of a column in a set of rows. Address questions like 'What are each product's Sales as a percentage of Sales for its product group?'
- **Lag/Lead** - Address business questions like 'Which regions growth of sales of 1998 as compared to 1997 was greater than 20%?', and 'What is the value of Sales in Financial Year 1996 minus Sales in Financial Year 1996?'
- **Statistics** - Perform statistical analysis with Business Intelligence OLAP/spreadsheet applications. For example, covariance and linear regression functions.

## A.5.2 Calculations and Drilling Into and out of data

When you use Analytic Functions, note that they have a precise definition which does not change as you drill, pivot, or sort the result set. For example, if you use the RANK function to assign ranks to sales figures partitioned by Quarter, if you drill down the Month level, the rank still only applies to the Quarter level.

## A.5.3 About The Analytic Function Template

When creating Analytic Functions in Discoverer, you can either type or paste them directly into the Calculation dialog box, or you can select them from the function list.

If you select them from the function list, you are presented with a generic Analytic Function **Template** that helps you define the function by telling you what information you *may* need to provide. Templates should be used as a guide. Because tem-



plates are designed to cover most types of usage, you will not always need to use every part of the template.

For example, when you paste a new RANK Analytic Function into a calculation box, Discoverer provides the following template:

**OVER (PARTITION BY expr1 ORDER BY expr2)**

Although you can define a complex function using both expressions (expr1 and expr2), you can often define a simple function using only the **ORDER BY** expression; for example:

**RANK()OVER(ORDER BY 'Sales')**

This example ranks sales figures (defined in the 'Sales' item).

**NOTE:** By default, results data is sorted in ascending order (ASC), nulls first (NULLS FIRST).

For more information about expressions used by the Analytic Function template, refer to "More about the Analytic Function Template".

## A.5.4 Ranking Function Examples

### A.5.4.1 About Ranking

Ranking functions compute the rank of an item with respect to other items in an ordered list.

### A.5.4.2 Assign Ranks to sales figures

This example ranks to a set of sales figures.

**Table A-4** *Workbook configuration for 'Assign Ranks to sales figures'*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM																																			
<b>Sort Order</b>	Year, Region																																			
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central																																			
<b>Calculation Name</b>	<b>Rank</b>																																			
<b>Calculation</b>	RANK() OVER(ORDER BY Sales SUM DESC)																																			
<b>Notes</b>	By default, ranked results data is sorted in ascending order (ASC), nulls first (NULLS FIRST). The additional DESC parameter sorts the results in descending order, which ranks the highest value with the Rank 1.																																			
<b>Display Data</b>	<table><thead><tr><th>Year</th><th>Region</th><th>City</th><th>Sales SUM</th><th>Rank</th></tr></thead><tbody><tr><td>2000</td><td>Central</td><td>Cincinnati</td><td>\$45,758</td><td>1</td></tr><tr><td></td><td></td><td>Louisville</td><td>\$35,896</td><td>2</td></tr><tr><td></td><td></td><td>St. Louis</td><td>\$22,041</td><td>3</td></tr><tr><td></td><td></td><td>Chicago</td><td>\$10,116</td><td>4</td></tr><tr><td></td><td></td><td>Minneapolis</td><td>\$9,820</td><td>5</td></tr><tr><td></td><td></td><td>Nashville</td><td>\$8,345</td><td>6</td></tr></tbody></table>	Year	Region	City	Sales SUM	Rank	2000	Central	Cincinnati	\$45,758	1			Louisville	\$35,896	2			St. Louis	\$22,041	3			Chicago	\$10,116	4			Minneapolis	\$9,820	5			Nashville	\$8,345	6
Year	Region	City	Sales SUM	Rank																																
2000	Central	Cincinnati	\$45,758	1																																
		Louisville	\$35,896	2																																
		St. Louis	\$22,041	3																																
		Chicago	\$10,116	4																																
		Minneapolis	\$9,820	5																																
		Nashville	\$8,345	6																																

### A.5.4.3 Assign Ranks to sales figures within Region

This example ranks a set of sales figures within each Region for each Year.

**Table A-5 Workbook configuration for 'Assign Ranks to sales figures within Region'**

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000
<b>Calculation Name</b>	<b>Rank Top</b>
<b>Calculation</b>	RANK() OVER(PARTITION BY Year, Region ORDER BY Sales SUM DESC)

**Display Data**

Year	Region	City	Sales SUM	Rank Top
2000	Central	Cincinnati	\$45,758	1
		Louisville	\$35,896	2
		St. Louis	\$22,041	3
		Chicago	\$10,116	4
		Minneapolis	\$9,820	5
		Nashville	\$8,345	6
		Dallas	\$7,749	7
East	New York	New York	\$83,602	1
		Washington	\$35,516	2
		Philadelphia	\$25,054	3
		Pittsburgh	\$22,683	4
		Atlanta	\$21,062	5
		Boston	\$19,410	6

#### A.5.4.4 Show the top three selling Cities per Region

This example ranks a set of sales figures and displays the top three selling Cities for each Region.

**Table A-6 Workbook configuration for 'Show the top three selling Cities per Region'**

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000 Rank Top <= 3
<b>Calculation Name</b>	<b>Rank Top</b>
<b>Calculation</b>	RANK() OVER(PARTITION BY Year, Region ORDER BY Sales SUM DESC)

**Tip** To quickly filter the list to the first, second, or third ranked cities, pivot the **Rank Top** item to the page axis, (see also Section 4.1.2, "Pivoting Data on a Table").

Year	Region	City	Sales SUM	Rank Top
2000	Central	Cincinnati	\$45,758	1
		Louisville	\$35,896	2
		St. Louis	\$22,041	3
	East	New York	\$83,602	1
		Washington	\$35,516	2
		Philadelphia	\$25,054	3
	West	San Francisco	\$39,460	1
		Seattle	\$36,485	2

### A.5.4.5 Show the top three and bottom three selling Cities per Region

This example ranks a set of sales figures and displays the top three and bottom three performing Cities per Region.

**Table A-7 Workbook configuration for 'Show the top and bottom three selling Cities per Region'**

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000 Rank Top <= 3 OR Rank Bottom <= 3
<b>Calculation Name</b>	<b>Rank Top</b>
<b>Calculation</b>	RANK() OVER(PARTITION BY Year, Region ORDER BY Sales SUM DESC)
<b>Additional Calculations Required</b>	<b>Rank Bottom</b> = RANK() OVER(PARTITION BY Year, Region ORDER BY Sales SUM ASC)
<b>Notes</b>	<p>This analysis involves three steps:</p> <ol style="list-style-type: none"> <li>1 - Assign ranks to Cities on Sales SUM in descending order, as <i>Rank Top</i>.</li> <li>2 - Assign ranks to Cities on Sales SUM in ascending order, as <i>Rank Bottom</i>.</li> <li>3 - Displaying only <i>Rank Top</i>, filter the data using a Condition to return only the top three and bottom three ranked Brands.</li> </ol> <p><i>In the example shown below, in the 'Central' Region, the top three cities are ranked 1, 2, and 3; the bottom three cities are ranked 5, 6, and 7.</i></p> <p><i>In the 'East' Region, the top three cities are ranked 1, 2, and 3; the bottom three cities are ranked 6, 7, and 8, and so on.</i></p>

**Table A-7** *Workbook configuration for 'Show the top and bottom three selling Cities per Region'*

Display Data	Year	Region	City	Sales SUM	Rank Top
	2000	Central	Cincinnati	\$45,758	1
			Louisville	\$35,896	2
			St. Louis	\$22,041	3
			Minneapolis	\$9,820	5
			Nashville	\$8,345	6
			Dallas	\$7,749	7
		East	New York	\$83,602	1
			Washington	\$35,516	2
			Philadelphia	\$25,054	3
			Boston	\$19,410	6
			New Orleans	\$11,365	7
			Miami	\$7,252	8
		West	San Francisco	\$39,460	1
			Seattle	\$36,485	2

## A.5.5 Banding Function Examples

### A.5.5.1 About Banding

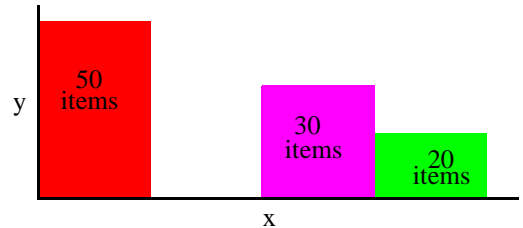
Banding is a type of ranking that divides a list of values in a partition into a specified number of groups called *Bands* (also known as *buckets*) and assigns each value to a Band.

Two common types of banding are:

- Banding by value** - this divides values into groups according to their *value*, (also known as **equi-width** bands).

Here, the function typically takes the largest value minus the lowest value, and divides the result by the number of bands required. This value defines the range of each Band.

Values are then assigned to bands according to which range they fall into. Therefore, the number of values in each Band may differ. For example, if we have 100 values and divide them into four equi-width bands, each band may contain different numbers of values.



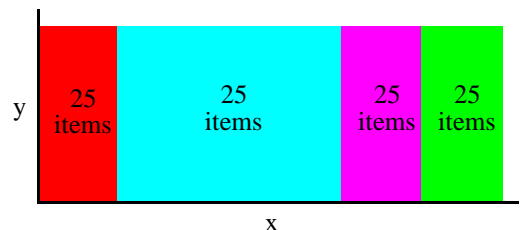
Use the **GREATEST** function or the **CASE** function to produce equi-width bands based on *value*.

- Banding by rank** - this divides values into groups according to their *rank*, (also known as **equi-height** bands).

Here, the function divides the number of values in the partition by the number of bands, which gives the number of values in each band.

An equal number of values are then placed in each band.

For example, if we have 100 values and divide them into four equi-height bands, each band contains 25 values.



Use the **NTILE** function to produce equi-height bands based on *rank*.

### A.5.5.2 Producing equi-width Bands (1)

This example divides Sales figures into bands according to their *value*, (also known as equi-width bands).

**Table A-8 Workbook configuration for 'Producing equi-width Bands (1)'**

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central
<b>Calculation Name</b>	<b>Sales Bands</b>
<b>Calculation</b>	GREATEST(1,4-FLOOR((Sales SUM-Min Sales for Region)/GREATEST(1,FLOOR((Max Sales for Region-Min Sales for Region+1)/4))))
<b>Additional Calculations Required</b>	<b>Max Sales for Region</b> = MAX(Sales SUM) OVER(PARTITION BY Region,Year) <b>Min Sales for Region</b> = MIN(Sales SUM) OVER(PARTITION BY Region,Year)
<b>Notes</b>	Using the Central Region and Year 2000 as an example, this function takes the largest value (45,758) minus the smallest value (7,749) and divides it by four, ((45,758-7,749)/4), giving four equal Bands of 9,502.25. This gives four bands with the following ranges: <ul style="list-style-type: none"> <li>■ <b>Band 1</b> - 36,255.75 to 45,758</li> <li>■ <b>Band 2</b> - 26,753.5 to 36,255.75</li> <li>■ <b>Band 3</b> - 17,251.25 to 26,753.5</li> <li>■ <b>Band 4</b> - 7,749 to 17,251.25</li> </ul>

Each value is placed in one of the four Bands depending on which range the Sales SUM value falls into.



**Table A-8** Workbook configuration for 'Producing equi-width Bands (1)'**Display Data**

---

Year	Region	City	Sales SUM	Sales Bands
2000	Central	Cincinnati	\$45,758	1
		Louisville	\$35,896	2
		St. Louis	\$22,041	3
		Minneapolis	\$9,820	4
		Nashville	\$8,345	4
		Dallas	\$7,749	4

---

### A.5.5.3 Producing equi-width Bands (2)

This example creates the same results as the example in “Producing equi-width Bands (1)”, except that it uses a CASE statement rather than the GREATEST function.

Again, the example divides Sales figures into bands according to their *value*, using a CASE function, (see also “Producing equi-width Bands (1)”).

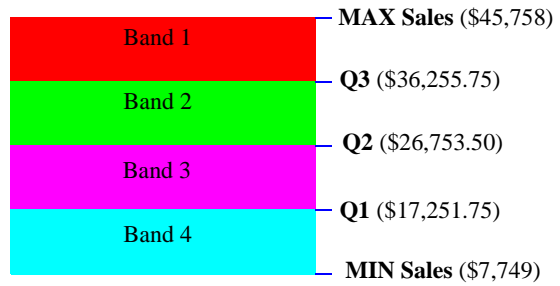
**Table A-9 Workbook configuration for ‘Producing equi-width Bands (2)’**

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central
<b>Calculation Name</b>	<b>Sales Bands 2</b>
<b>Calculation</b>	CASE WHEN Sales SUM < Q1 THEN 4 WHEN Sales SUM < Q2 THEN 3 WHEN Sales SUM < Q3 THEN 2 WHEN Sales SUM >= Q3 THEN 1 END
<b>Additional Calculations Required</b>	<b>MAX Sales</b> = MAX(Sales SUM) OVER(PARTITION BY Year) <b>MIN Sales</b> = MIN(Sales SUM) OVER(PARTITION BY Year) <b>Range</b> = (MAX Sales - MIN Sales)/4 <b>Q1</b> = MIN Sales + Range <b>Q2</b> = MIN Sales + (Range*2) <b>Q3</b> = MAX Sales - Range

**Table A-9 Workbook configuration for 'Producing equi-width Bands (2)'**

**Notes** This function uses a series of IF statements in the form of a CASE function to assign sales figures into bands, (see Band Ranges below).

### Band Ranges



### Display Data

Year	Region	City	Sales SUM	Sales Bands 2
2000	Central	Cincinnati	\$45,758	1
		Louisville	\$35,896	2
		St. Louis	\$22,041	3
		Minneapolis	\$9,820	4
		Nashville	\$8,345	4
		Dallas	\$7,749	4

### A.5.5.4 Producing equi-height Bands

This example assigns a set of sales figures into two equi-height Bands.

**Table A-10** *Workbook configuration for 'Producing equi-height Bands'*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central
<b>Calculation Name</b>	<b>Sales Bands 3</b>
<b>Calculation</b>	NTILE(2) OVER(PARTITION BY Year, Region ORDER BY Sales SUM DESC)
<b>Notes</b>	Using the Central Region and Year 2000 as an example, this function takes the number of values (which is six) and divides it by two, giving three values per Band. It then takes the list of values ordered by Sales SUM and places values one, two, and three in Band 1, values four, five, and six in Band 2.

#### Display Data

Year	Region	City	Sales SUM	Sales Bands 3
2000	Central	Cincinnati	\$45,758	1
		Louisville	\$35,896	1
		St. Louis	\$22,041	1
		Minneapolis	\$9,820	2
		Nashville	\$8,345	2
		Dallas	\$7,749	2

## A.5.6 Windowing Function Examples

### A.5.6.1 About Windowing

Windowing functions are used to compute aggregates using values from other rows. For example, cumulative, moving, and centered aggregates.

Two common types of windowing are:

- Windowing with logical offsets** - here, the offset is based on a value relative to an existing value, e.g. three months preceding a date value.

For example, if we have a list of monthly sales figures, a logical window could compute a moving average of the previous three months, (inclusive of the current month).

When calculating the average, the calculation assumes a NULL value for months missing from the list. In the example, the three-month moving average for November assumes NULL values for the missing months September and October.

Month	Sales	Rolling average
January	10,000	-
February	20,000	-
March	40,000	23,333
June	20,000	20,000
July	10,000	15,000
November	30,000	30,000

- Windowing with physical offsets** - here, the offset is based on a value that is a specified number of rows from an existing value, e.g. three rows from the current item.

For example, if we have a list of monthly sales figures, a physical window could compute a moving average of the previous three rows ignoring missing months.

When calculating the average, the calculation ignores months missing from the list. In the example, the three-month moving average for November uses June, July, and November in the calculation.

Month	Sales	Rolling average
January	10,000	-
February	20,000	-
March	40,000	23,333
June	20,000	26,666
July	10,000	23,333
November	30,000	20,000

### A.5.6.2 Calculate a three month moving sales average

This example uses a logical window to calculate a moving three month Sales average.

**Table A-11** Workbook configuration for 'Calculate a three month moving Sales average'

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Month (Calendar Month), Sales SUM
<b>Sort Order</b>	Year, Month
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central
<b>Calculation Name</b>	<b>Moving Avg</b>
<b>Calculation</b>	AVG(Sales SUM) OVER(ORDER BY "Month" RANGE INTERVAL '2' MONTH PRECEDING)
<b>Notes</b>	Note that you define the RANGE INTERVAL as '2', not '3', even though you want a three month Window. This is because the Window expression implicitly includes the current row. Therefore, in this example, the INTERVAL '2' plus the current row gives a total of three months, (2 + <i>current row</i> = 3).

**Display Data**

Year	Month	Sales SUM	Moving Average
2000	Jan	\$26,575	\$26,575
	Feb	\$21,319	\$23,947
	Mar	\$17,308	\$21,734
	Apr	\$34,859	\$24,495
	May	\$21,280	\$24,482
	Jun	\$18,384	\$24,841

### A.5.6.3 Show the cumulative values of sales

This example uses a physical window to calculate the cumulative value of sales.

**Table A-12** Workbook configuration for 'Show the cumulative value of sales'

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM																																			
<b>Sort Order</b>	Year, Region																																			
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central																																			
<b>Calculation Name</b>	<b>Cumulative Total</b>																																			
<b>Calculation</b>	SUM(Sales SUM) OVER(ORDER BY Year ROWS UNBOUNDED PRECEDING)																																			
<b>Display Data</b>	<table border="1"> <thead> <tr> <th>Year</th> <th>Region</th> <th>City</th> <th>Sales SUM</th> <th>Cumulative Total</th> </tr> </thead> <tbody> <tr> <td>2000</td> <td>Central</td> <td>Cincinnati</td> <td>\$45,758</td> <td>\$45,758</td> </tr> <tr> <td></td> <td></td> <td>Louisville</td> <td>\$35,896</td> <td>\$81,654</td> </tr> <tr> <td></td> <td></td> <td>St. Louis</td> <td>\$22,041</td> <td>\$103,695</td> </tr> <tr> <td></td> <td></td> <td>Minneapolis</td> <td>\$9,820</td> <td>\$123,631</td> </tr> <tr> <td></td> <td></td> <td>Nashville</td> <td>\$8,345</td> <td>\$131,976</td> </tr> <tr> <td></td> <td></td> <td>Dallas</td> <td>\$7,749</td> <td>\$139,725</td> </tr> </tbody> </table>	Year	Region	City	Sales SUM	Cumulative Total	2000	Central	Cincinnati	\$45,758	\$45,758			Louisville	\$35,896	\$81,654			St. Louis	\$22,041	\$103,695			Minneapolis	\$9,820	\$123,631			Nashville	\$8,345	\$131,976			Dallas	\$7,749	\$139,725
Year	Region	City	Sales SUM	Cumulative Total																																
2000	Central	Cincinnati	\$45,758	\$45,758																																
		Louisville	\$35,896	\$81,654																																
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		Minneapolis	\$9,820	\$123,631																																
		Nashville	\$8,345	\$131,976																																
		Dallas	\$7,749	\$139,725																																

## A.5.7 Reporting Function Examples

### A.5.7.1 About Reporting Functions

Reporting functions are used to compute aggregates.

### A.5.7.2 Calculate annual sales by Year

This example calculates annual sales by Year.

**Table A-13** Workbook configuration for 'Calculate annual sales by Year'

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000
<b>Calculation Name</b>	<b>Annual Sales</b>
<b>Calculation</b>	SUM(Sales SUM) OVER()

Year	Region	City	Sales SUM	Annual Sales
2000	Central	Cincinnati	\$45,758	\$472,902
		Louisville	\$35,896	\$472,902
		St. Louis	\$22,041	\$472,902
		Minneapolis	\$9,820	\$472,902
		Nashville	\$8,345	\$472,902
		Dallas	\$7,749	\$472,902
	East	New York	\$83,602	\$472,902
		Washington	\$35,516	\$472,902
		Philadelphia	\$25,054	\$472,902
		Boston	\$19,410	\$472,902



### A.5.7.3 Calculate annual sales by region

This example calculates the total annual sales by Year and Region.

**Table A-14** Workbook configuration for 'Calculate annual sales by region'

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM
<b>Sort Order</b>	Year, Region
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000
<b>Calculation Name</b>	<b>Annual Sales by Region</b>
<b>Calculation</b>	SUM(Sales SUM) OVER(PARTITION BY Year, Region ORDER BY Year, Region)

Year	Region	City	Sales SUM	Annual Sales by Region
2000	Central	Cincinnati	\$45,758	\$139,725
		Louisville	\$35,896	\$139,725
		St. Louis	\$22,041	\$139,725
		Minneapolis	\$9,820	\$139,725
		Nashville	\$8,345	\$139,725
		Dallas	\$7,749	\$139,725
	East	New York	\$83,602	\$225,964
		Washington	\$35,516	\$225,964
		Philadelphia	\$25,054	\$225,964
		Boston	\$19,410	\$225,964
		New Orleans	\$11,365	\$225,964
		Miami	\$7,252	\$225,964
	West	San Francisco	\$39,460	\$107,213
		Seattle	\$36,485	\$107,213

### A.5.7.4 Calculate percentage of annual sales by Region

This example calculates the percentage of annual sales per Region for each City in each Year.

**Table A-15** Workbook configuration for 'Calculate percentage of annual sales'

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM																																																												
<b>Sort Order</b>	Year, Region, % of Annual Sales																																																												
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000																																																												
<b>Calculation Name</b>	<b>% of Annual Sales</b>																																																												
<b>Calculation</b>	Sales SUM*100/Annual Sales by Region																																																												
<b>Additional Calculations Required</b>	<b>Annual Sales by Region</b> = SUM(Sales SUM) OVER(PARTITION BY Year, Region ORDER BY Year, Region)																																																												
<b>Display Data</b>	<table border="1"> <thead> <tr> <th>Region</th> <th>City</th> <th>Sales SUM</th> <th>Annual Sales by Region</th> <th>% of Annual Sales</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Central</td> <td>Cincinnati</td> <td>\$45,758</td> <td>\$139,725</td> <td>9.68</td> </tr> <tr> <td>Louisville</td> <td>\$35,896</td> <td>\$139,725</td> <td>7.59</td> </tr> <tr> <td>St. Louis</td> <td>\$22,041</td> <td>\$139,725</td> <td>4.66</td> </tr> <tr> <td>Minneapolis</td> <td>\$9,820</td> <td>\$139,725</td> <td>2.08</td> </tr> <tr> <td>Nashville</td> <td>\$8,345</td> <td>\$139,725</td> <td>1.76</td> </tr> <tr> <td>Dallas</td> <td>\$7,749</td> <td>\$139,725</td> <td>1.64</td> </tr> <tr> <td rowspan="6">East</td> <td>New York</td> <td>\$83,602</td> <td>\$225,964</td> <td>17.68</td> </tr> <tr> <td>Washington</td> <td>\$35,516</td> <td>\$225,964</td> <td>7.51</td> </tr> <tr> <td>Philadelphia</td> <td>\$25,054</td> <td>\$225,964</td> <td>5.30</td> </tr> <tr> <td>Boston</td> <td>\$19,410</td> <td>\$225,964</td> <td>4.10</td> </tr> <tr> <td>New Orleans</td> <td>\$11,365</td> <td>\$225,964</td> <td>2.40</td> </tr> <tr> <td>Miami</td> <td>\$7,252</td> <td>\$225,964</td> <td>1.53</td> </tr> <tr> <td>West</td> <td>San Francisco</td> <td>\$39,460</td> <td>\$107,218</td> <td>8.34</td> </tr> </tbody> </table>	Region	City	Sales SUM	Annual Sales by Region	% of Annual Sales	Central	Cincinnati	\$45,758	\$139,725	9.68	Louisville	\$35,896	\$139,725	7.59	St. Louis	\$22,041	\$139,725	4.66	Minneapolis	\$9,820	\$139,725	2.08	Nashville	\$8,345	\$139,725	1.76	Dallas	\$7,749	\$139,725	1.64	East	New York	\$83,602	\$225,964	17.68	Washington	\$35,516	\$225,964	7.51	Philadelphia	\$25,054	\$225,964	5.30	Boston	\$19,410	\$225,964	4.10	New Orleans	\$11,365	\$225,964	2.40	Miami	\$7,252	\$225,964	1.53	West	San Francisco	\$39,460	\$107,218	8.34
Region	City	Sales SUM	Annual Sales by Region	% of Annual Sales																																																									
Central	Cincinnati	\$45,758	\$139,725	9.68																																																									
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	Miami	\$7,252	\$225,964	1.53																																																									
West	San Francisco	\$39,460	\$107,218	8.34																																																									

### A.5.7.5 Calculate sales as a percentage of total Sales

This example calculates sales as a percentage of total Sales.

**Table A-16** Workbook configuration for 'Calculate sales as a percentage of total profit'

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Region, City, Sales SUM																																			
<b>Sort Order</b>	Year, Region, % of Annual Sales																																			
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central																																			
<b>Calculation Name</b>	<b>% of total Sales</b>																																			
<b>Calculation</b>	RATIO_TO_REPORT(Sales SUM) OVER()*100																																			
<b>Display Data</b>	<table border="1"> <thead> <tr> <th>Year</th> <th>Region</th> <th>City</th> <th>Sales SUM</th> <th>% of Total Sales</th> </tr> </thead> <tbody> <tr> <td>2000</td> <td>Central</td> <td>Cincinnati</td> <td>\$45,758</td> <td>32.75</td> </tr> <tr> <td></td> <td></td> <td>Louisville</td> <td>\$35,896</td> <td>25.69</td> </tr> <tr> <td></td> <td></td> <td>St. Louis</td> <td>\$22,041</td> <td>15.77</td> </tr> <tr> <td></td> <td></td> <td>Minneapolis</td> <td>\$9,820</td> <td>7.03</td> </tr> <tr> <td></td> <td></td> <td>Nashville</td> <td>\$8,345</td> <td>5.97</td> </tr> <tr> <td></td> <td></td> <td>Dallas</td> <td>\$7,749</td> <td>5.55</td> </tr> </tbody> </table>	Year	Region	City	Sales SUM	% of Total Sales	2000	Central	Cincinnati	\$45,758	32.75			Louisville	\$35,896	25.69			St. Louis	\$22,041	15.77			Minneapolis	\$9,820	7.03			Nashville	\$8,345	5.97			Dallas	\$7,749	5.55
Year	Region	City	Sales SUM	% of Total Sales																																
2000	Central	Cincinnati	\$45,758	32.75																																
		Louisville	\$35,896	25.69																																
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		Minneapolis	\$9,820	7.03																																
		Nashville	\$8,345	5.97																																
		Dallas	\$7,749	5.55																																

## A.5.8 Lag/Lead Function Examples

### A.5.8.1 About Lag/Lead Functions

LAG and LEAD functions are typically used to compare values in different time periods. For example, compare sales figures in 2000 with sales figures in 2001.

- LAG - provides access to more than one row of a table at the same time without a self-join.
- LEAD - provides access to a row at a given offset after the current position.

### A.5.8.2 Compare sales figures across time

This example compares sales figures across time.

**Table A-17** *Workbook configuration for 'Compare sales figures across time'*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Sales SUM												
<b>Sort Order</b>	Year												
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Region = Central												
<b>Calculation Name</b>	<b>Previous Year</b>												
<b>Calculation</b>	LAG(Sales SUM,1) OVER(ORDER BY Year)												
<b>Notes</b>	Because there are no comparative figures for 1998, the Previous Year value for 1998 is blank.												
<b>Display Data</b>	<table border="1"> <thead> <tr> <th>Year</th> <th>Sales SUM</th> <th>Previous Year</th> </tr> </thead> <tbody> <tr> <td>1998</td> <td>\$618,482</td> <td></td> </tr> <tr> <td>1999</td> <td>\$739,838</td> <td>\$618,482</td> </tr> <tr> <td>2000</td> <td>\$472,902</td> <td>\$739,838</td> </tr> </tbody> </table>	Year	Sales SUM	Previous Year	1998	\$618,482		1999	\$739,838	\$618,482	2000	\$472,902	\$739,838
Year	Sales SUM	Previous Year											
1998	\$618,482												
1999	\$739,838	\$618,482											
2000	\$472,902	\$739,838											

### A.5.8.3 Calculate sales growth across time

Using the comparative sales figures from example 11.8.2, this example calculates the sales growth across time.

**Table A-18** *Workbook configuration for 'Calculate sales growth across time'*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Sales SUM
<b>Sort Order</b>	Year
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Region = Central
<b>Calculation Name</b>	<b>Growth</b>
<b>Calculation</b>	(Sales SUM-Previous Year)*100/Previous Year
<b>Additional Calculations Required</b>	<b>Previous Year</b> = LAG(Sales SUM,1) OVER(ORDER BY Year)
<b>Notes</b>	Because there are no comparative figures for 1998, the Previous Year value for 1998 is blank.
<b>Display Data</b>	

Year	Sales SUM	Previous Year	Growth
1998	\$618,482		
1999	\$739,838	\$618,482	19.62
2000	\$472,902	\$739,838	-36.08

### A.5.8.4 Rank sales growth

Using the comparative sales figures from examples A.2.8.2 and A.2.8.3, this example ranks sales growth by year.

**Table A-19** Workbook configuration for 'Rank sales growth'

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Sales SUM																				
<b>Sort Order</b>	Year																				
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Region = Central																				
<b>Calculation Name</b>	<b>Rank Growth</b>																				
<b>Calculation</b>	RANK() OVER(ORDER BY Growth DESC)																				
<b>Additional Calculations Required</b>	<b>Previous Year</b> = LAG(Sales SUM,1) OVER(PARTITION BY 'Year' ORDER BY 'Year' ) <b>Growth</b> = (Sales SUM-Previous Year)*100/Previous Year																				
<b>Notes</b>	Because there are no comparative figures for 1998, the <b>Previous Year</b> and <b>Growth</b> values for 1998 are blank and the Rank Growth is calculated as '1'.																				
<b>Display Data</b>	<table border="1"> <thead> <tr> <th>Year</th> <th>Sales SUM</th> <th>Previous Year</th> <th>Growth</th> <th>Rank Growth</th> </tr> </thead> <tbody> <tr> <td>1998</td> <td>\$618,482</td> <td></td> <td></td> <td>1</td> </tr> <tr> <td>1999</td> <td>\$739,838</td> <td>\$618,482</td> <td>19.62</td> <td>2</td> </tr> <tr> <td>2000</td> <td>\$472,902</td> <td>\$739,838</td> <td>-36.08</td> <td>3</td> </tr> </tbody> </table>	Year	Sales SUM	Previous Year	Growth	Rank Growth	1998	\$618,482			1	1999	\$739,838	\$618,482	19.62	2	2000	\$472,902	\$739,838	-36.08	3
Year	Sales SUM	Previous Year	Growth	Rank Growth																	
1998	\$618,482			1																	
1999	\$739,838	\$618,482	19.62	2																	
2000	\$472,902	\$739,838	-36.08	3																	

## A.5.9 Statistical Function Examples

### A.5.9.1 About Statistics Functions

Statistics functions are used to compute covariance, correlation, and linear regression statistics. Each function operates on an unordered set. They also can be used as windowing and reporting functions.

### A.5.9.2 Calculate linear regression

This example computes an ordinary least-squares regression line that expresses the Profit SUM per Month as a linear function of its Sales SUM. The following functions are used:

- SLOPE - slope of determination of the regression line
- INTERCEPT - intercept of determination of the regression line
- REGR\_R2 - coefficient of determination of the regression line
- REGR\_COUNT - number of items
- REGR\_AVGX - average salary
- REGR\_AVGY - average bonus

**Table A-20** *Workbook configuration for 'Calculate sales as a percentage of total profit'*

<b>Select Items</b>	Video Analysis Information: Year (Calendar Year), Month (Calendar Month), Sales SUM, Profit SUM
<b>Sort Order</b>	Year
<b>Conditions</b>	Department = Video Sale OR Department = Video Rental Year = 2000



**Table A-20** Workbook configuration for 'Calculate sales as a percentage of total profit'

<b>Calculations</b>	<b>Slope</b> = REGR_SLOPE(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)  <b>Intercept</b> = REGR_INTERCEPT(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)  <b>Coefficient</b> = REGR_R2(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)  <b>Count</b> = REGR_COUNT(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)  <b>Average</b> = REGR_AVGX(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)  <b>Average 2</b> = REGR_AVGY(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)
---------------------	---

**Source Data**

Year	Month	Sales SUM	Profit SUM
2000	Mar	\$61,472	\$39,649
	Jun	\$62,894	\$41,751
	May	\$76,164	\$50,448
	Feb	\$77,983	\$50,596
	Jan	\$85,050	\$54,488
	Apr	\$109,339	\$72,523

**Display Data**

Slope	Intercept	Coefficient	Count	Average	Average 2
			1.00	61472.00	39649.00
1.48	-51218.89	1.00	2.00	62183.00	40700.00
0.70	-3057.88	0.99	3.00	66843.33	43949.33
0.66	-276.82	0.99	4.00	69628.25	45611.00
0.62	2249.25	0.99	5.00	72712.60	47386.40
0.67	-1118.50	1.00	6.00	78817.00	51575.83

## A.6 More about the Analytic Function Template

When you paste a new Analytic Function into a Calculation box, Discoverer provides the following generic template:

**OVER (PARTITION BY expr1 ORDER BY expr2)**

The expressions are used as follows.

- **OVER** - indicates that the function operates on a query result set, after the other query clauses have been applied, (such as **FROM**, **WHERE**, **HAVING** etc.
- **PARTITION BY** - partition (or group) the query results set. E.g. **PARTITION BY 'Region'**.
- **ORDER BY** - specify how the results set is logically ordered. E.g. **ORDER BY 'Sales SUM'**.

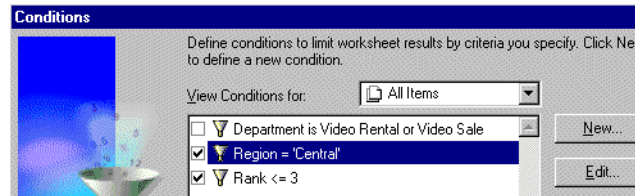
For more information about Oracle expressions, refer to “Getting More Information”.

## A.7 Analytic Functions and Sequencing

When you use Analytic Functions in Conditions, the way that you combine them with non-Analytic Functions affects the Discoverer data returned by the query. The following sequencing rules apply:

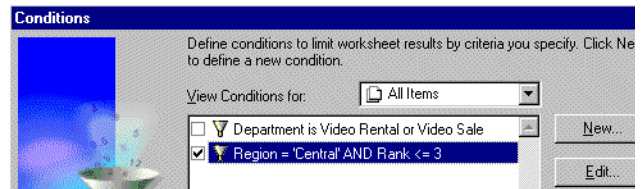
- Where Conditions contain *only* non-Analytic functions, these are applied *before* Conditions that contain Analytic functions.

In the example right, the 'Region = 'Central'' condition is applied first, then the Rank is computed, then the 'Rank <= 3' condition is applied, (which contains an Analytic function).



- Where Conditions contain a combination of non-Analytic functions *and* Analytic functions, the Analytic functions are applied *before* the non-Analytic functions.

In the example right, the Rank is evaluated, then the 'Rank <= 3' condition is applied, then the 'Region = 'Central'' condition is applied.



To illustrate how sequencing affects the Discoverer data returned by a query, consider the following two scenarios.

In the first scenario, we apply two simple Conditions: **Region = 'Central'**, and **Rank <= 3** (where Rank is an Analytic Function).

The **Region = 'Central'** condition is applied first, then **Rank <= 3**. Therefore, only Sales figures for the Central Region that have a ranking of three or less are included in the Results Set.

Region	Sales	Rank	Results Set
Central	10,000	3	↳ 3
Central	8,000	4	
Central	20,000	1	↳ 1
Central	10,000	2	↳ 2
East	70,000		
East	50,000		

In the second scenario, we apply a single advanced Condition: **Region = 'Central' AND Rank <= 3**, (where Rank is an Analytic Function).

The **Rank <= 3** condition is applied first, then the **Region = 'Central'** condition.

Therefore, only figures in the Central Region that have an *overall* ranking of three or less are included in the Results Set.

Region	Sales	Overall Rank	Results Set
Central	10,000	4	
Central	8,000	5	
Central	20,000	3	↳ 3
Central	10,000	4	
East	70,000	1	
East	50,000	2	

---

---

## Oracle Applications Support

This Appendix contains the following sections:

- Supported Features
- Prerequisites
- Connect dialog settings for Oracle Applications Users

### B.1 Supported Features

The following Oracle Applications features are supported by Discoverer:

- Access to Oracle Applications databases (using Applications user names, passwords and responsibilities)
- Multiple Organizations

These features are only available when Discoverer is running against an Oracle Applications database (Applications Mode).

### B.2 Prerequisites

To connect as an Oracle Applications user (Applications Mode), you need the following:

- Oracle Applications installed.
  - Oracle Applications must be installed before Discoverer can be used in Applications Mode.
- Your Discoverer Connect dialog configured to allow connection to Oracle Applications EULs, (see “Configuring the Oracle Applications user Connect dialog”).

- An Oracle Applications version supported by Discoverer. Supported versions are:
  - Release 10.7 (SmartClient and Character mode)
  - Release 11
  - Release 11.5

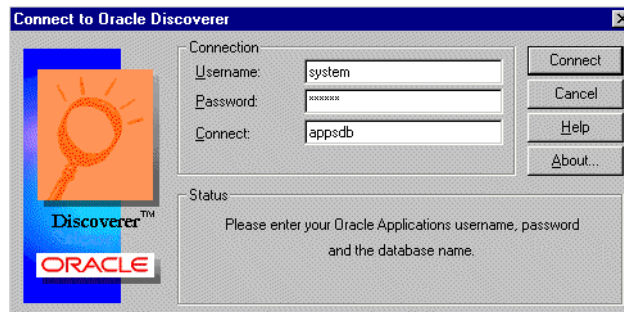
## B.3 Connect dialog settings for Oracle Applications Users

### B.3.1 Before you start

When you connect to Discoverer as an Oracle Applications User, the Connect dialog prompts you to enter your Oracle Applications connect details, (see **Status** box in Figure B-1).

If Discoverer is not configured to use Oracle Applications EULs, you need to re-configure your Connect dialog, (see Appendix B.3.3, “Configuring the Oracle Applications user Connect dialog”).

*Figure B-1 An Oracle Discoverer Connect dialog for Applications Users only*



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**Note:** An Oracle Applications User check box appears beneath the Connect box when Discoverer is configured to use both standard EULs and Oracle Applications EULs, (see “Connecting to Discoverer as an Oracle Applications User”).

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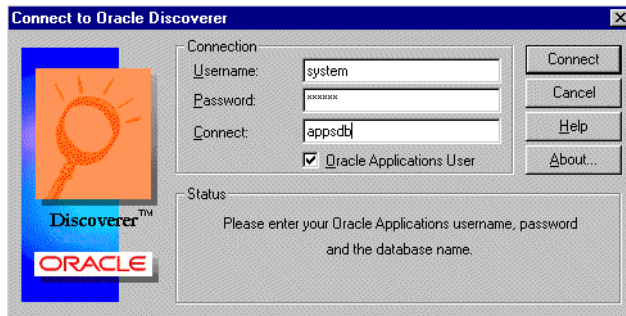
---

### B.3.2 Connecting to Discoverer as an Oracle Applications User

Once you have configured Discoverer to use Oracle Applications EULs, (see Appendix B.3.1, “Before you start”), connect to Discoverer as follows:

1. Enter your Oracle Applications **Username**, **Password**, and **Connect** database name given to you by your Discoverer manager.

**Figure B–2** An Oracle Discoverer Connect dialog with an Applications Users check box



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**Note:** The Oracle Applications User check box appears beneath the Connect box when Discoverer is configured to use both standard EULs and Oracle Applications EULs, (see “Configuring the Oracle Applications user Connect dialog”).

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2. If the **Oracle Applications User** check box is displayed beneath the Connect box, make sure that you select the **Oracle Applications User** check box.

---

---

**NOTE:** The **Oracle Applications User** check box is displayed when Discoverer is configured to use both Oracle Applications EULs and standard Discoverer EULs, (see also Appendix B.3.3, “Configuring the Oracle Applications user Connect dialog”).

---

---

3. Click **Connect**.



The Choose a Responsibility dialog displays a list of Responsibilities that are defined. If there is more than one Responsibility defined, you must choose one assigned to you by your Oracle Administrator.

**Figure B-3** The Choose a Responsibility dialog



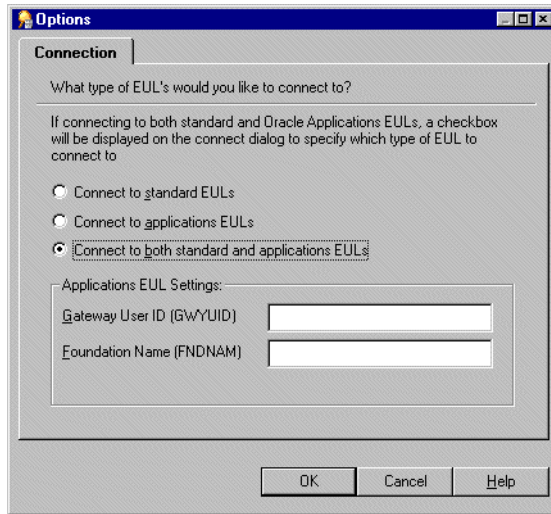
4. Select a **Responsibility** from the list, then click **OK**.

### B.3.3 Configuring the Oracle Applications user Connect dialog

Before you can connect to Oracle Discoverer as an Oracle Applications User, you have to configure the Oracle Discoverer Connect dialog, as follows:

1. Select **Tools | Options** from the main menu to display the Options dialog:

*Figure 8–25 The Options dialog*



2. Select one of the following options:

- **Connect to applications EULs**  
Choose this option to allow you to connect to Oracle Applications EULs, but not standard Discoverer EULs.
- **Connect to both standard and applications EULs**  
Choose this option to allow you to connect to both Oracle Applications EULs and standard Discoverer EULs.  
When you use this option, an extra check box is displayed on the Connect dialog called **Oracle Applications User**, which you select when you are connecting to an Applications EUL.

If you wish to change the default Gateway User ID and Foundation Name settings, see Appendix B.3.3.1, “Entering details into the fields GWYUID/Password and FNDNAM”.

3. Click **OK**.

### **B.3.3.1 Entering details into the fields GWYUID/Password and FNDNAM**

When you connect as an Oracle Applications User, you may wish to change the *default Gateway User ID* and **Foundation Name**:

- **Gateway User ID (GWYUID)/Password**  
This field enables you to record your Gateway User ID and Password. (The default values 'applsypub/pub' is used if nothing is entered here.)
- **Foundation Name (FNDNAM)**  
This field enables you to enter the Foundation Name. (The default value 'apps' is used if nothing is entered here.)

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**NOTE:** See your Discoverer manager for **Gateway User ID** and **Foundation Name** details.

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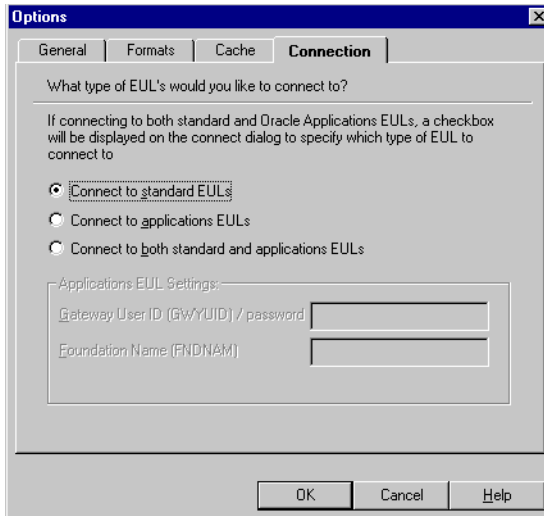
---

### B.3.4 Configuring Discoverer to use standard EULs

To configure Oracle Discoverer to use *only* standard EULs, configure the Connect dialog, as follows:

1. Select **Tools | Options** from the main menu to display the Options dialog:

**Figure 8–26** The Options dialog



2. Select the **Connect to standard EULs** option.
3. Click **OK**.

## B.3.5 Connection Configuration

When connecting to Discoverer Desktop as an Oracle Applications user, you can edit your shortcut properties to enable you to log in automatically in various ways.

### B.3.5.1 Editing your Discoverer shortcut icon

1. On your Windows desktop, right-click your Discoverer Desktop icon.
2. Click **Properties**.
3. Choose the **Shortcut** tab.
4. Type in your changes to the **Target** box.

Here are three examples that show how your Discoverer shortcut can be configured:

### B.3.5.2 Specify a basic Connect

1. Edit your Discoverer shortcut icon, (see Section B.3.5.1, “Editing your Discoverer shortcut icon”).
2. Enter the **Target** string as follows:

```
dis5usr.exe /APPS_GWYUID GATEWAY_ID /APPS_FNDNAM FOUNDATION_ID /
APPS_USER
```

where:

GATEWAY\_ID is your Gateway User ID, (this must be in upper-case).

FOUNDATION\_ID is your Foundation name, (this must be in upper-case).

Here, the /APPS\_USER argument specifies that Discoverer should connect using Oracle Applications usernames. In the Discoverer Connect dialog, the user enters their username as a concatenation of the Applications username and responsibility, separated by a colon character (:). The Password and Database string are entered as normal. For example:

```
Username: jchung:Purchasing Manager
Password: password
Database: database_name
```

### B.3.5.3 Specify a Connect with an automatic Responsibility

1. Edit your Discoverer shortcut icon, (see Section B.3.5.1, “Editing your Discoverer shortcut icon”).

2. Enter the **Target** string as follows:

```
dis5usr.exe /APPS_GWYUID GATEWAY_ID /APPS_FNDNAM FOUNDATION_ID /  
APPS_USER /APPS_RESPONSIBILITY RESPONSIBILITY
```

where:

GATEWAY\_ID is your Gateway User ID, (this must be in upper-case).

FOUNDATION\_ID is your Foundation name, (this must be in upper-case).

RESPONSIBILITY is your Responsibility, (this is case insensitive).

Here, the /APPS\_RESPONSIBILITY argument specifies that Discoverer should connect with the Responsibility defined. In the Discoverer Connect dialog, the user enters in their Username, Password, and Database as normal. For example:

Username: **jchung**

Password: **password**

Database: **database\_name**

#### **B.3.5.4 Bypass the Connect dialog with an automatic Connect**

1. Edit your Discoverer shortcut icon, (see Section B.3.5.1, “Editing your Discoverer shortcut icon”).
2. Enter the **Target** string as follows:

```
dis5usr.exe /APPS_GWYUID GATEWAY_ID /APPS_FNDNAM FOUNDATION_ID /  
APPS_USER /CONNECT username:responsibility/password@database
```

where:

GATEWAY\_ID is your Gateway User ID, (this must be in upper-case).

FOUNDATION\_ID is your Foundation name, (this must be in upper-case).

username is your Username, (this is case insensitive).

responsibility is your Responsibility, (this is case insensitive).

password is your Password, (this is case insensitive).

database is your Database, (this is case insensitive).

Here, the Discoverer Connect dialog is bypassed and a connection is made automatically.

---

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# Discoverer OLE Support

## C.1 Discoverer OLE Support

Discoverer Desktop supports OLE automation. An OLE demonstration is installed with Discoverer. The demonstration is installed in the following directory:

`<ORACLE_HOME>\discv902\demo\oleauto\`

This directory contains the following documents:

- OLEdemo.doc - A Microsoft Word file containing instructions on how to run the Discoverer OLE demonstration.
- OLEdev.doc - A Microsoft Word file containing the Discoverer 9.0.2 OLE Automation Developer's Guide. This is a quick-guide to developing an OLE interface for Discoverer.

The `<ORACLE_HOME>\discv902\demo\oleauto\` directory also contains the following files:

- OLEdemo.xls - a Microsoft Excel spreadsheet used in the OLE demonstration.
- Video.dis - a Discoverer Workbook used in the OLE demonstration.





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# Glossary

## **axis**

One of the three directions of a sheet. Items that you choose for a query appear in the axes. See: top axis, side axis, page axis, axis item.

## **axis item**

An item appearing in either the top axis, side axis, or page axis of a sheet. In a table, items can appear only in the top axis or page axis; in a crosstab, items can appear in any axis. See: axis, data item.

## **business area**

A set of related information with a common business purpose, organized into folders. Defined in the End User Layer using Discoverer Administrator. See: End User Layer, folder.

## **calculation**

A mathematical formula performed on one or more items. Oracle Discoverer enables you to build complex calculations.

## **collapse**

To remove all levels of related items from below a selected item. In effect, to undo a drill-down. See: drill down.

## **conceptually identical object**

Conceptually Identical Objects are elements in different EULs that refer to the same business objects, (e.g. folders, item-classes, hierarchies). When identifying Conceptually Identical Objects, Discoverer uses either Headings or Identifiers to match elements.

**condition**

Criteria for filtering data displayed in a sheet. Oracle Discoverer enables you to combine several conditions.

**crosstab**

A sheet layout that arranges items in a matrix of rows and columns. Items appear in both the top and side axes. Use a crosstab to display summary information and show how one item relates to another, such as sales by region by month. A crosstab is sometimes called a matrix. See: table.

**database**

A collection of related data organized for quick access.

**data item**

The item expressing the relationship between a top axis item and a side axis item. Only items which have a data item in common can appear opposite each other in the top and side axes. Applies only to crosstab-layout sheets. A data item is sometimes called a measure. See: axis item, datapoint.

**datapoint**

The value of a data item, as displayed in a cell of a sheet. A datapoint reflects the relationship between intersecting axis items in a crosstab. See: data item.

**drill**

To expand an item to include items related to it. Oracle Discoverer may re-query the database. See: drill down, drill up.

**drill down**

To expand an item to include related items lower than it in the hierarchy. Oracle Discoverer may re-query the database. See: drill, drill up, collapse.

**drill up**

To expand an item to include the next related item above it in the hierarchy. Oracle Discoverer may re-query the database. See: drill, drill down, collapse.

**End User Layer™**

A layer of information that Oracle Discoverer uses to hide the complexities and details of the underlying database. The End User Layer makes it easier and faster to create queries because it organizes the data to reflect particular business areas. The

same data can also be used for more than one business situation. The End User Layer is defined using Discoverer Administrator. See: database, business area.

**exception**

Formatting that highlights data meeting certain criteria you define. For example, you can highlight names of sales people exceeding their quotas in blue. Oracle Discoverer enables you to display several exceptions at once.

**folder**

A collection of related items within a business area. Folders are defined in the End User Layer using Discoverer Administrator. See: item, business area.

**group sort**

Formatting that suppresses duplicate values for an item. Applies only to table-layout sheets. For example, if you group sort an item called Region, information will appear grouped under such headings as East, West, North, and South. A group sort is sometimes called break format.

**hierarchy**

The relationship among items. You can drill up or drill down to related items.

**identifier**

Identifiers are unique names that Discoverer uses to identify business area objects (e.g. folders, items, calculations). When matching elements common to different EULs, Discoverer uses identifiers to locate elements in different EULs that refer to the same business objects (also known as Conceptually Identical Objects).

For example, a folder named 'Sales' in EUL 'A' may refer to the same folder named 'Sales Figures' in EUL 'B'. Both folders have the same identifier and can therefore be identified as referring to the same folder.

**item**

A particular category of information within a folder, defined in the End User Layer. Items you choose for a query appear in the top axis and side axis of the resulting sheet. See: folder.

**materialized view**

A Materialized View is a summary mechanism used by the Oracle 8.1.6+ server. Materialized Views pre-compute and store aggregated data for use in SQL queries.

**page axis**

The axis that displays a page item. The page axis appears above the top axis.

**page item**

An item that enables you to view data from a particular perspective. Page items apply to a whole sheet. When you create a page item from an axis item or data item, one value appears at a time, such as 1997 for Year. You change the value of the page item—such as 1997, 1998, or 1999—by choosing from the list of available values in the Page item box. Items can be dragged to the Page item box from either the top axis or the side axis.

**pivot**

To drag an item from one axis to the other (crosstabs only), or from an axis to the Page item box. A side axis item becomes a top axis item or a page item or vice versa. Pivoting enables you to display the data more compactly and show relationships between items more clearly.

**query**

A search that retrieves information from a database according to criteria you specify. The criteria include items, layout, formatting, conditions, and calculations. Results of a query are displayed in a sheet.

**query prediction**

An Oracle Discoverer feature that gives an estimate of the time required to retrieve the information in a query. The query prediction appears before the query begins, so you can cancel the query.

**sheet**

A tab in the workbook window. A sheet displays the results of one or more queries.

**side axis**

The axis of a sheet that runs vertically along the left side of the sheet. Applies only to a crosstab. See: axis, axis item.

**sort**

To specify how data in an item should be ordered. For example, you can sort an item from low to high (A-Z) or from high to low (Z-A).

**SQL**

Acronym for Structured Query Language, the language used to define and manipulate data in a database. You can view the current SQL code for a particular sheet by choosing SQL Inspector from the View menu.

**table**

A sheet layout that arranges items in columns. Items appear in the top axis. Use a table to list all information that fits the query criteria, such as sales transactions for the last month. See: crosstab.

**top axis**

The axis of a sheet that runs horizontally along the top of the sheet. See: side axis, axis item.

**total**

The result of a calculation that summarizes data in a sheet. Examples of totals are minimum, maximum, average, and sum.

**workbook**

One or more sheets created and saved together. Each sheet is displayed in a separate tab in the workbook.



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# Index

## Symbols

---

!= operator in conditions, 5-40  
& (ampersand) in worksheet titles, 2-29  
+ (plus) sign in dialog boxes, 7-4  
< operator in conditions, 5-39  
<= operator in conditions, 5-40  
<> operator in conditions, 5-39  
= operator in conditions, 5-39  
> operator in conditions, 5-39  
>= operator in conditions, 5-40

## Numerics

---

3D graphs, 3-16  
3D View command, 3-16

## A

---

access rights, 7-1  
accessing data, 1-3, 1-4  
accessing workbooks, 6-26  
active folder, 7-4  
Active Only option, 5-3, 5-36  
adding graphic bars, 2-24 to 2-25  
adding graphics to worksheets, 2-31, 8-6  
adding new items to layouts, 4-13, 7-15  
adding reports, 6-1  
addition, 5-20  
administrators, 1-4, 1-5, 1-8  
Advanced button (Conditions), 5-41, 8-13  
aggregations icon, 7-6  
aligning  
    bitmaps in titles, 2-32

    report headers/footers, 6-5  
    text in column headings, 2-23  
All Items option, 5-3, 5-36  
ampersand (&) in worksheet titles, 2-29  
analysis bar, 2-3  
analysis tools  
    applying to data, 5-1 to 5-6  
    creating definitions, 5-4  
    deleting definitions, 5-5  
    editing definitions, 5-4  
    exporting and, 6-12  
    turning definitions on/off, 5-2  
    types listed, 5-1  
    viewing definitions, 5-3  
Analytic Functions, A-5, A-30  
and Oracle Server 8.1.6, A-5  
and Sequencing, A-33  
calculating cumulative values, A-21  
CASE, A-13  
categories, A-6  
Equi-height bands, A-13  
equi-height bands, A-18  
equi-width bands, A-14  
generic template, A-32  
in Conditions, A-33  
INTERCEPT, A-30  
Lag/Lead, A-26  
LEAD, A-26  
ORDER BY expression, A-32  
OVER expression, A-32  
PARTITION BY expression, A-32  
RANK(), A-9, A-10  
Ranking, A-8  
RATIO\_TO\_REPORT, A-25

- REGR\_AVGX, A-30
- REGR\_COUNT, A-30
- REGR\_R2, A-30
- Reporting, A-22
- SUM, A-21, A-22
- Windowing with logical offsets, A-19
- Windowing with physical offsets, A-19
- analyzing data, 1-4, 2-7, 4-2, 5-1
- AND operator, 8-14
- and Responsibilities, 6-22
- applications, 6-12
- Apply group sort icon, 4-43
- applying formats, 2-24
- arrows as cursors, 2-15, 2-16
- ascending sort order, 4-37
- assigning workbooks, 6-26, 6-28
- associating data with workbooks, 2-3
- attaching to databases, 1-8
- attachments, 6-10
- audio files, 8-21
- Auto Size command, 2-21
- Average option, 5-20
- averages, 5-14, 5-20
- axes labels (graphs)
  - displaying, 3-4, 3-5, 3-12
  - formatting, 3-7
- axis item icon, 7-5
- axis item markers, 2-12, 2-13
  - selecting, 2-15
- axis item value icon, 7-5
- axis items, 7-5
  - crossstabs, 2-6
  - drilling into, 4-27, 4-29
  - drilling through sub-levels on, 4-28
  - moving data among, 4-1, 4-9
  - selecting, 2-12 to 2-13, 2-15
  - sorting across, 4-46
  - sorting on, 4-43, 4-45
  - viewing values, 7-5
  - workbook window, 2-3

## B

---

- background colors
  - column headings, 2-23

- worksheet titles, 2-27
- Banding
  - Banding by rank, A-13
  - Banding by value, A-13
  - CASE, A-13
  - with Analytical Functions, A-13
- bar formats
  - graphs, 3-7
  - tables, 2-24
- BETWEEN operator, 5-40
- bitmaps, 2-31, 8-6
- Boolean operators, 8-13
- Business area icon, 7-4
- business areas, 1-5
  - displaying, 7-4
  - selecting items, 7-3, 7-6
- buttons
  - Graph toolbar, 3-4
  - Print Preview window, 6-8
  - workbook window, 2-3
- bypassing the Connect dialog, B-10

## C

---

- cache, 8-22
- Calculation dialog box, 8-16
- Calculation Examples, A-1
- calculations, 4-13, 5-20, 5-31
  - creating, 8-8 to 8-13
  - creating for conditions, 5-38
  - displaying results, 8-8
  - editing in new workbooks, 7-19
  - exporting and, 6-12
  - selecting for new workbooks, 7-13
  - standard syntax, 8-13, 8-18, 8-20, 8-25
  - viewing existing, 8-10
- Calculations command, 8-10
- Calculations dialog box, 8-10
- canceling changes, 1-18
- case-sensitive text filters, 5-41
- cell spacing, 4-38
- cells
  - drilling and, 4-30
  - selecting, 2-8, 2-10
- changing data, 1-18



- changing data formats, 8-22
- changing graphs, 3-10 to 3-11
- changing pages
  - multi-page layouts, 2-16
  - workbooks, 1-16
- changing text items, 2-21, 2-28
- clock icon, 6-23
- Close command, 1-18
- closing Print Preview window, 6-9
- closing workbooks, 1-18
- Collapse command, 4-25
- colors
  - column headings, 2-23
  - graphs, 3-5, 3-19
    - customizing, 3-21 to 3-22
  - worksheet titles, 2-27
- column headings, 2-4, 2-21, 5-31, 5-32
  - aligning text, 2-23
  - display options, 8-21
  - drilling and, 4-29
  - editing text, 2-21
  - formatting caution, 2-22
  - reformatting on crosstabs, 2-23
  - reformatting on tables, 2-22 to 2-23
  - selecting, 2-10
  - wrapping text in, 2-23
- column markers, 2-10, 2-14
- columns, 2-6, 7-5
  - displaying text, 2-20
  - drilling multiple, 4-24
  - moving, 2-18, 4-40
    - group sorts and, 4-41
  - pivoting, 4-2, 4-6, 4-7
  - reformatting data, 2-24
  - removing from sorts, 4-41
  - resizing, 2-20 to 2-21
    - automatically, 2-21
  - selecting, 2-9
  - selecting items, 2-8
  - sorting on two, 4-41
- Columns Width command, 2-21
- Command Line Interface, 8-34
- command-line options, 8-22
- company logos, 2-31
- comparisons, 1-13, 2-24, 4-2
- complex calculations, 8-8
- complex conditions, 8-13
- condition
  - parameter placeholder, 8-2
- condition icon, 7-6
- condition operators, 5-39
- conditions, 4-13, 5-34 to 5-43
  - adding descriptions to, 5-37
  - applying, 5-34, 5-35
  - assigning data items to, 5-38
  - changing on new worksheets, 7-17
  - conflicting, 5-35
  - copying, 8-14
  - creating advanced, 8-13 to 8-17
  - creating definitions for, 5-37, 5-41
  - deleting definitions, 5-37, 5-42
  - editing definitions, 5-42
  - enabling/disabling definitions, 5-35, 5-36
  - exceptions vs., 5-34
  - exporting and, 6-12
  - naming, 5-37
  - nesting, 5-38
  - removing, 5-36
  - selecting, 8-14
    - selecting for new worksheets, 7-9
    - selecting multiple values for, 8-16
  - viewing definitions
    - for specific items, 5-36
- Conditions command, 5-34
- Conditions dialog box, 5-35
- Configuring Discoverer to use standard EULs, B-8
- Configuring the Oracle Applications user Connect dialog, B-6
- Connect to Discoverer dialog box, 1-8
- connecting to databases, 1-8
- Copy Graph to Clipboard button, 3-4, 3-5
- copying conditions, 8-14
- copying SQL statements, 8-24
- correlated items, 8-18, 8-19
- correlation, A-30
- Count All Rows command, 8-1
- Count Distinct option, 5-20
- Count option, 5-20
- covariance, A-30
- Create Calculation option, 5-38

- Create Subquery dialog box, 8-17
- creating calculations, 8-8 to 8-13
- creating graphs, 3-2, 3-5 to 3-9
- creating reports, 6-1
- creating workbooks, 1-9
- creating workbooks and worksheets, 7-1, 7-2 to 7-14
  - arranging layouts, 7-8
  - choosing data items, 7-4, 7-6
  - optional steps, 7-2
  - selecting conditions, 7-9
  - selecting display type, 7-2
  - sorting data, 7-11
  - specifying calculations, 7-13
- crosstabs, 1-6, 2-6, 6-1
  - arranging items on new, 7-8
  - data points and, 2-4
  - delineating data, 2-24, 4-38
  - drilling and, 4-30
    - multiple columns or rows, 4-24, 4-26
    - procedure described, 4-24
    - skipping hierarchical levels, 4-27, 4-28
  - duplicating, ?? to 4-13
  - editing layouts, 7-14, 7-16
  - getting data for new, 7-5
  - item markers and, 2-13, 2-15
  - larger than a page, 6-4
  - overview, 2-7
  - pivoting items, 4-9 to ??
  - reformatting column headings, 2-23
  - reformatting data, 2-24
  - scaling, 6-4
  - selecting as display type, 7-2
  - selecting items, 2-9, 2-10, 2-11
  - sorting data, 4-43 to 4-48
    - across axes, 4-46
      - adding data points, 4-48
      - defaults, 4-46
      - group sorts and, 4-41
      - restoring previous state, 4-46
    - with multiple pages, 2-7, 2-16
- current date, 2-28, 6-5

## D

---

- data, 2-3
  - accessing, 1-3, 1-4
  - adding to graphs, 3-9
  - aggregating, 7-6
  - analyzing, 1-4, 2-7, 4-2, 5-1
  - canceling changes, 1-18
  - comparing, 1-13, 2-24, 4-2
  - delineating with bars, 2-24, 4-38
  - displaying specific items, 5-34, 8-13
  - filtering, 5-34, 7-6, 8-13
  - finding exceptions, 5-6 to 5-14
    - defining item for, 5-10
  - getting details, 4-14
  - pivoting, 2-15, 4-1 to 4-13
    - on crosstabs, 4-9
  - reformatting, 2-24 to 2-25
  - replacing, 4-33
  - retrieving, 1-7, 1-11, 1-17
    - for new crosstabs, 7-5
  - saving changes to, 1-18
  - selecting for drilling, 4-24
    - automatically, 4-29
    - in other sheets, 4-31
    - tables, 4-21
  - selecting for new worksheets, 7-3, 7-6
  - sorting, 4-13, 4-35 to 4-48
    - automatically, 4-43
    - crosstabs and, 4-43, 4-46, 4-48
    - data within, 4-38 to 4-41
    - display options, 4-37
    - in groups, 4-38, 4-41 to 4-42
    - on new worksheets or workbooks, 7-11 to 7-13, 7-18
  - subtotals and ungrouped, 4-42
  - totals for non-numeric, 5-21
  - updating, 8-2
  - viewing, 1-2, 1-5, 2-5, 2-15
- Data command, 2-24, 2-25
- data points, 2-6
  - calculations and, 8-9
  - defined, 2-4
  - getting totals for, 5-20, 5-21, 5-23
  - sorting, 4-48

- databases, 1-2, 1-6, 2-1
  - connecting to, 1-8
  - loading, 1-8
  - non-Oracle, 1-15
  - saving workbooks with, 1-19
- dates
  - adding to reports, 2-28, 6-5
  - setting for scheduled reports, 6-19
- decimal places, 3-9, 5-26
- default aggregate, 7-6
- default formats, 2-18
- Define Custom Colors option, 3-21
- Delete button, 5-6
- Delete command, 1-20
- Delete Workbook from Database dialog, 1-21
- deleting
  - analysis tool definitions, 5-5
  - items from workbooks and worksheets, 7-7
  - items on new worksheets, 7-15
  - sort columns, 4-41
  - workbooks, 1-20
- descending sort order, 4-37
- descriptions for workbooks, 1-16
- designing reports, 6-3
- dimensions, 2-6, 2-13
- Discoverer
  - running, 1-8
- Discoverer Desktop
  - basic concepts, 1-1
  - shortcuts, 2-34
- disk cache, 8-22
- display options, 8-22
- display types, 2-5 to 2-7
  - selecting, 7-2
- displaying
  - business areas, 7-4
  - data, 1-2, 1-5, 2-5, 2-15
    - specific items, 5-34, 8-13
  - graph labels, 3-4, 3-5, 3-12
  - graphs, 3-17
  - items in folders, 7-4
  - multi-page reports, 6-8
  - page headers/footers, 6-5
  - sorted data, 4-37
  - SQL statements, 8-24, 8-27
  - text, 2-20
  - workbooks, 1-13
  - worksheets, 1-16
- distinct values, 5-20
- distributing reports, 6-9 to 6-11
- donut graphs, 3-14
- double-headed cursors, 2-18
- Drill command, 4-30
- Drill dialog box, 4-30 to 4-32
  - opening, 4-30
- drill options, 4-30, 4-33
  - from menus, 4-21
- Drill Options dialog box, 4-33
- drilling, 4-14 to 4-34, ?? to 4-36
  - across worksheets, 4-30, 4-31
  - automatically, 4-29
  - basic procedure described, 4-24
  - crosstabs and, 4-30
  - data out of sequence, 4-27, 4-28
  - display options, 4-33
  - tables and, 4-21, 4-22, 4-23, 4-30
  - to related items, 4-27, 4-31, 4-32
- drilling menus, 4-21
- Duplicate as Table dialog box, 4-12
- duplicate rows, 7-8
- duplicate values, 4-48
- duplicating tables and crosstabs, ?? to 4-13

## E

---

- Edit Calculation dialog box, 8-10, 8-11
- Edit Condition dialog box, 5-42
- Edit Graph command, 3-10
- Edit Parameter Values command, 8-6
- Edit Sheet command, 7-14
- Edit Sheet dialog box, 7-14
  - adding/removing items, 7-15
  - changing conditions, 7-17
  - changing layouts, 7-16
  - changing sorting preferences, 7-18
- edit subquery, 8-20
- Edit Title command, 2-26, 2-31, 2-33
- Edit Title dialog box, 2-27, 2-28, 2-31
  - Insert button, 2-29
- editing

- analysis tool definitions, 5-4
- column headings, 2-21
- exception items, 5-13
- graphs, 3-10 to 3-11
- new worksheets and workbooks, 7-14 to 7-19
- scheduled report settings, 6-25 to 6-26
- worksheet titles, 2-28
- editing subqueries, 8-17
- e-mail, 6-9 to 6-11
  - adding attachments, 6-10
  - format options, 6-11
- equal values, 5-12
- equality, 5-39
- error messages, 6-26
- EUL (End User Layer), 8-22
- Excel tool, 6-16
- Excel workbooks, 6-12, 6-16
- Exception dialog box, 5-6, 5-9
- exceptions, 5-6 to 5-14
  - conditions vs., 5-34
  - conflicts, 5-8
  - creating, 5-9 to 5-13
  - defining expressions, 5-10, 5-12
  - editing, 5-13
  - enabling/disabling, 5-8, 5-9
  - formatting, 5-12
- Exceptions command, 5-8
- Exceptions dialog box, 5-8
  - opening, 5-8
- Exceptions tool, 5-8
- Execution Plan
  - Materialized Views, 8-26
- expanding items in dialog boxes, 7-5
- expiration dates, 6-20
- Export command, 6-12, 6-13
- Export dialog box, 6-12
  - for Oracle Reports, 6-13
- Export SQL from a Workbook, 8-34
- exporting reports, 6-12 to ??
- exporting SQL statements, 8-24
- expressions, 8-11
  - defining for conditions, 5-39, 5-41, 8-13
  - defining for exceptions, 5-10, 5-12
- external applications, 1-2, 6-12

## F

---

- files, 8-21
- filters, 5-34, 7-6, 8-13
- Find button, 7-4
- finding
  - exceptions to data values, 5-11
  - specific text items, 5-11
- flattened SQL, 8-33
- folders, 1-5
  - active vs. unavailable, 7-4
  - viewing items, 7-4
- Folders icon, 7-4
- fonts
  - column headings, 2-23
  - graphs, 3-8
  - report headers/footers, 6-6
- footers, 6-4 to 6-6
  - adding text codes, 6-5
- Format Data dialog box, 2-24, 2-25
- Format Heading dialog box, 2-22
- Format Title dialog box, 2-27
- formatting axes labels, 3-7
- formatting bar, 2-3
  - reformatting column headings, 2-22, 2-24
- formatting options
  - bitmaps, 2-32
  - exceptions, 5-12
  - percentages, 5-33
  - totals and subtotals, 5-24
  - worksheet titles, 2-26
- formatting worksheets, 2-18 to 2-32
  - column headings, 2-22 to 2-24
  - titles, 2-26
- Foundation Name, B-6

## G

---

- Gateway User ID, B-6
- Generate Label Automatically option, 5-23
- Graph button, 3-2
- Graph menu, 3-4
- Graph window, 3-3
  - resizing, 3-13
- Graph Wizard, 3-3, 3-5, 3-10
- graphic bars, 2-24 to 2-25

graphics, 2-31, 8-6  
graphs, 3-1 to 3-22

- adding legends, 3-7
- adding patterns, 3-19, 3-20
- adding to worksheets, 3-2, 3-5 to 3-9
- color options, 3-19
- display options, 3-17
- distributing via e-mail, 6-9, 6-10
- modifying, 3-10 to 3-11
- plotting data on, 3-9
- printing, 3-4, 3-5, 6-3
- removing patterns, 3-20
- resizing, 3-13
- rotating, 3-16 to ??
  - z-axis, 3-18
- selecting type, 3-4, 3-5, 3-6, 3-11
- updating, 3-9
- visual enhancements, 3-14, 3-17

gridlines, 3-9, 8-21  
group names, 4-38  
group sorts, 4-38, 4-41 to 4-42

- automatic, 4-43

## H

---

headers, 6-4 to 6-6

- adding text codes, 6-5

Headings command, 2-22, 2-23  
Hi to Lo sort order, 4-37  
hiding duplicate rows, 7-8  
high values, 5-12, 5-20, 5-39  
highlighting, 2-8  
hints, 2-3  
HKEY\_CURRENT\_USER - registry setting, 8-33  
horizontal gridlines, 3-9

## I

---

icons (New Sheet dialog), 7-4, 7-5

- See also* tool bar

Import SQL command, 8-25  
importing SQL, 8-25  
importing SQL statements, 8-25  
IN operator, 5-40  
informational messages, 2-3

Inline Views, 8-33  
Insert Data Point Name option, 5-23, 5-32  
Insert Item Name option, 5-23, 5-32  
Insert menu, 2-29  
Insert Value option, 5-23, 5-32  
IS NOT NULL operator, 5-40  
IS NULL operator, 5-40  
item handles, 4-46  
item markers, 2-12, 2-13

- selecting, 2-15

items, 8-9

- adding new, 4-13, 7-15
- adding to printed reports, 6-3
- arranging in layouts, 7-8 to 7-9
- attaching to conditions, 8-16
- deleting on new worksheets, 7-15
- editing, 2-21, 2-28
- expanding in dialog boxes, 7-5
- formatting, 2-18 to 2-32
- pivoting on crosstabs, 4-9 to ??
- pivoting on tables, 4-6 to ??, 4-7 to ??
- removing from workbooks and worksheets, 7-7
- selecting, 2-8 to 2-15
  - in multiple positions, 2-8
- selecting for exceptions, 5-10
- selecting for scheduled reports, 6-19, 6-24
- viewing conditions for specific, 5-36
- viewing in folders, 7-4

## J

---

join definitions - importing SQL, 8-25

## L

---

labels, 5-22

- adding text codes
  - percentages and, 5-32
  - totals and subtotals, 5-23
- displaying on graphs, 3-4, 3-5, 3-12
- formatting graph axes, 3-7
- generating automatically, 5-23
- percentages columns, 5-31, 5-32
- removing text codes, 5-24, 5-32
- wrapping text in, 5-24

- Landscape mode, 6-4
- large worksheets, 8-21
- layout options, 8-21
- layouts, 2-5 to 2-7
  - arranging items, 7-8 to 7-9
  - changing, 7-14, 7-16
  - selecting, 7-2
- Legend command, 3-12
- legends, 3-3
  - adding to graphs, 3-7
  - displaying, 3-4, 3-12
- LIKE operator, 5-40
- linear regression, A-30
- lines, 2-24, 4-38, 6-5
- lists, 2-5, 4-35
- Lo to Hi sort order, 4-37
- loading databases, 1-8
- logos, 2-31
- Lotus 1-2-3 spreadsheet, 6-12
- low values, 5-12, 5-20, 5-39

## M

---

- magnifying glass, 6-9
- mailing lists, 2-5
- main window, 2-1
- margins, 6-6
- Match Case option, 5-41
- Materialized View, 8-26
- mathematical functions
  - selecting, 7-6
- Maximum option, 5-20
- memory cache, 8-22
- menus, 2-3, 2-34
  - drilling options, 4-21
- metafiles, 6-11
- Microsoft Excel workbooks, 6-12, 6-16
- Minimum option, 5-20
- Modify Graph button, 3-4, 3-10
- Modify Graph dialog box, 3-10
- monthly reports, 6-18
- moving columns, 2-18, 4-40
  - group sorts and, 4-41
- moving data. *See* pivoting
- multi-dimensional crosstabs, 2-6

- multi-page crosstabs, 2-7
  - changing pages, 2-16
- multi-page reports, 6-8
- multi-page tables, 2-5
  - changing pages, 2-16
- multiple columns or rows
  - drilling, 4-24, 4-26
- multiple workbooks
  - opening, 1-13 to 1-15
  - switching among, 1-13

## N

---

- nesting conditions, 5-38
- New command, 7-2
- New Condition dialog box, 5-37, 8-13
- New Graph Type button, 3-4, 3-5, 3-11
- New Graph Type drop down list, 3-11
- New Parameter command, 8-4
- New Parameter dialog box, 8-5
- new sheet
  - for subqueries, 8-18
- New Sheet command, 7-2
- New Sheet dialog box, 7-3
  - arranging items on layouts, 7-8
  - icons described, 7-3, 7-5
  - moving items to Selected list, 7-7
  - opening, 7-2
  - selecting calculations, 7-13
  - setting conditions, 7-10
  - sorting data, 7-11
- non-numeric data totals, 5-21
- non-Oracle databases, 1-2, 1-15
- NOT BETWEEN operator, 5-40
- NOT IN operator, 5-40
- NOT LIKE operator, 5-40
- null values, 5-40
- numbers, 2-4, 5-14
  - adding graphic bars, 2-24 to 2-25
  - adding to new crosstabs, 7-5
  - getting exceptions to, 5-11
  - getting totals and subtotals for, 5-20, 5-21
  - sorting, 4-35, 4-38, 4-41
- numeric item icon, 7-5

## O

---

- ODBC SQL, 8-33
- OLE automation, C-1
- OLE demonstration, C-1
- OLE support in Discoverer, C-1
- OLEdemo.doc, C-1
- OLEdev.doc, C-1
- One Page button, 6-9
- on-line transaction processing, 8-2
- /open option, 8-23
- Open command, 1-14
- /open option, 8-23
- Open Scheduled Workbook dialog box, 6-21
- Open Workbook dialog box, 1-14
- opening Scheduling Manager, 6-22
- opening workbooks, 1-8, 1-9, 8-21, 8-23
  - multiple, 1-13 to 1-15
  - non-Oracle, 1-15
- operator buttons, 8-11
- operators, 8-5
  - Boolean, 8-13
  - conditional expressions, 5-39
- Options button, 8-20
- Options command, 8-20
- Options dialog box, 8-20, 8-21
- Oracle Applications
  - automatic Connect, B-10
  - choosing a Responsibility, B-5
  - configuring the Connect dialog, B-6
  - Connect dialog, B-3
  - connect to Discoverer, B-4
  - connection configuration, B-9
  - Foundation Name, B-7
  - Gateway User ID, B-7
  - Prerequisites, B-1
  - shortcut icon, B-9
  - supported features, B-1
- Oracle Applications User, 6-22
- Oracle Reports, 6-13 to 6-15
- ordered lists, 4-35
- Orientation option, 6-4
- outlined cells, 2-8

## P

---

- /p <file> option, 8-23
- page axis, 2-3
  - containing data, 2-15
  - moving columns to, 4-6, 4-7
- page detail crosstab layouts, 2-7
  - changing pages, 2-16
- page detail tabular layouts, 2-5
  - changing pages, 2-16
- page headers and footers, 6-4 to 6-6
  - adding text codes, 6-5
- page item marker, 4-7
- page items
  - editing, 2-21
  - pivoting, 4-7 to ??
  - reformatting, 2-24
  - removing from layouts, 7-8
- page numbers, 6-6
- page orientation, 6-4
- Page Setup command, 6-3
- Page Setup dialog box, 6-3 to 6-7
  - opening, 6-3
- pagebreaks, 4-38
- paint jar, 3-19
- Parameter dialog box, 8-16
- parameters
  - adding to conditions, 8-16
  - attaching to conditions, 8-16
  - calculations and, 8-11
  - creating, 8-2 to 8-6
  - defined, 8-2
  - defining default, 8-5
  - enabling/disabling, 8-6
  - entering multiple values in, 8-5, 8-7
  - naming, 8-5
  - selecting data items for, 8-5
  - viewing existing, 8-4
- Parameters command, 8-4
- Parameters dialog box, 8-4
- passwords, 1-8
- Pattern Editor, 3-20
- patterns, 3-5
  - adding to graphs, 3-19, 3-20
  - customizing, 3-20

- removing from graphs, 3-20
- pencil tool, 3-20
- Percentage dialog box, 5-30
- Percentage of Grand Total option, 5-20
- percentages, 5-20, ?? to 5-33
  - creating definitions for, 5-30
  - editing definitions, 5-33
  - enabling/disabling definitions, 5-29
  - formatting options, 5-33
  - getting, 5-27
  - group sorts and, 4-42
  - not totaling 100%, 5-26
  - removing, 5-29
  - rounding and, 5-26
  - viewing definitions, 5-29
- percentages columns
  - labeling, 5-31, 5-32
- Percentages command, 5-29
- Percentages dialog box, 5-29
  - opening, 5-29
- Percentages tool, 5-27
- pie graphs, 3-14
- pivoting, 2-15, 4-1 to 4-13
  - examples, 4-2 to ??, 4-3 to 4-6, 4-6 to ??
  - items on crosstabs, 4-9 to ??
  - items on tables, 4-6 to ??, 4-7 to ??
- plus signs (+) in dialog boxes, 7-4
- pointers
  - as arrows, 2-15, 2-16
  - as double-headed lines, 2-18
  - as magnifying glass, 6-9
  - as paint jar, 3-19
  - as pencil, 3-20
  - item markers and, 2-15
  - page axis and, 2-16
- pop-up menus, 2-34
- Portrait mode, 6-4
- preface
  - conventions table sample, 1-xiv
  - heading
    - PH PrefaceHead, 1-xiii
    - PT PrefaceTitle, 1-xiii
- Prepare Mail dialog box, 6-9
- Preview button, 6-7, 6-8
- previewing reports, 6-8 to 6-9

- Print button, 3-4, 3-5
- print options, 6-3 to 6-7
- Print Preview command, 6-8
- Print Preview window, 6-8
  - closing, 6-9
  - moving through report pages, 6-8
- printing, 2-14, 2-26
  - from files, 8-23
  - graphs, 3-4, 3-5, 6-3
  - large worksheets, 6-4
  - reports, 4-38, 6-1 to 6-7
- progressions, 4-1
- prompts, 8-5
- properties, 1-15 to 1-16
- Properties command, 1-15
- PT PrefaceTitle, 1-xiii

## Q

---

- queries, 1-7, 1-17, 8-16
  - running, 1-11
  - running for all sheets, 8-23
- query estimate dialog, 1-12
- Query Governor, 8-21

## R

---

### RANK

- default ordering, A-8
- ordering by ASC, A-8
- ordering by DESC, A-8
- RDF files, 6-14
- rearranging columns, 2-18, 4-40
  - group sorts and, 4-41
- reference lines (graphs), 3-14
- reformatting worksheets, 2-18 to 2-32
  - column headings, 2-22 to 2-24
  - titles, 2-26
- Refresh Sheet command, 1-18, 8-2
- refreshing worksheets, 8-2
- regedit, 8-33
- registry settings, 8-33
- removing items from workbooks and
  - worksheets, 7-7
- removing sort columns, 4-41



- removing workbooks, 1-20
- renaming workbooks, 1-19
- reordering columns, 2-18, 4-40
  - group sorts and, 4-41
- replacing data, 4-33
- report templates (Oracle Reports), 6-15
- reports, 1-2, 6-1
  - adding date/time entries, 2-28, 6-5
  - adding headers/footers, 6-5
  - designing page layouts, 6-3
  - displaying two pages side-by-side, 6-9
  - distributing with e-mail, 6-9 to 6-11
  - exporting, 6-12 to ??
  - previewing, 6-8 to 6-9
  - printing, 4-38, 6-1 to 6-7
  - removing headers/footers, 6-5
  - running scheduled, 6-18 to 6-26
  - saving, 6-13
  - setting margins, 6-6
  - unscheduling, 6-24
  - viewing multi-page, 6-8
- resizing columns, 2-20 to 2-21
  - automatically, 2-21
- resizing graphs, 3-13
- resizing windows, 2-35
- result sets, 6-20 to 6-22
  - selecting, 6-21
  - viewing, 6-24
- Retrieve All Rows command, 8-1
- retrieving rows, 8-1
- right-click menus, 2-34
- rotating graphs, 3-16 to ??
- rounding, 5-26
- row markers, 2-14
- row numbers, 2-9, 8-21
- rows, 2-6
  - drilling multiple, 4-24, 4-26
  - drilling single, 4-27, 4-29
  - hiding duplicate, 7-8
  - retrieving, 8-1
  - selecting, 2-8
- running Discoverer, 1-8
- running queries, 1-11
- running scheduled reports, 6-18 to 6-26

## S

---

- sample database, 1-6, 2-1
- Save As command, 1-19
- Save As dialog box, 1-20
- Save command, 1-18
- Save Workbook dialog box, 1-19
- Save Workbook to Database dialog box, 1-20
- saving exported reports, 6-13
- saving workbooks, 1-18 to 1-20
- Scale command, 3-11
- scaling printouts, 6-4
- Schedule button, 6-18, 6-24
- Schedule command, 6-18
- Schedule Workbook dialog box, 6-19 to 6-20, 6-24, 6-25
  - opening, 6-18
- scheduled reports, 6-18 to 6-26
  - deleting completed, 6-24
  - displaying, 6-23
  - editing settings, 6-25 to 6-26
  - error messages, 6-26
  - expiration dates, 6-20
  - naming, 6-20
  - running, 6-18, 6-23
  - selecting items, 6-19, 6-24
  - unscheduling, 6-24
  - viewing results, 6-20 to 6-22, 6-24
- Scheduled Workbook
  - Oracle Applications User, 6-22
- scheduled workbooks, 1-10, 6-22
  - Oracle Applications Users, 6-22
- Scheduling Manager, 6-22 to 6-26
  - opening, 6-22
- Scheduling Manager button, 6-21
- Scheduling Manager command, 6-22
- screen markers, 2-10, 2-14, 4-7
- scroll bars, 2-4
- scroll buttons, 1-17, 2-4
- scrolling, 2-16
- Select Condition option, 5-38
- selecting
  - data for drilling, 4-24
    - automatically, 4-29
    - in other sheets, 4-31

- tables, 4-21
- data for new worksheets, 7-3, 7-6
- display type, 7-2
- exception items, 5-10
- items for scheduled reports, 6-19, 6-24
- items on worksheets, 2-8 to 2-15
  - in multiple positions, 2-8
  - multiple values for conditions, 8-16
- result sets, 6-21
- workbooks, 1-11, 1-14
- worksheets, 1-16 to 1-18, 2-15
- selection boxes, 2-11
- Send command, 6-9
- sending e-mail messages, 6-9
- sequential conditions, 8-14
- servers, 6-18
- Set Bitmap option, 8-6
- setting options, 8-20
- setting properties
  - workbooks, 1-15 to 1-16
- setting report margins, 6-6
- setting sort order, 4-37, 4-43
- shading, 3-17
- shadows, 3-17
- Share Workbooks dialog box, 6-27 to 6-28
- Sharing command, 6-26
- sharing workbooks, 6-26 to 6-28
- /sheet ALL option, 8-23
- shortcuts, 2-34
- Show Graphic Bars option, 2-25
- Show Page Items option, 7-8
- Show/Hide Labels button, 3-4, 3-5, 3-12
- Show/Hide Legend button, 3-4, 3-12
- simple calculations, 8-8, 8-9
- Sort command, 4-37, 4-46
- Sort Crosstab dialog box, 4-46 to 4-48
  - opening, 4-47
- sort order, 4-37, 4-43
  - reversing, 4-46
- Sort Table dialog box, 4-37
  - ordering columns in, 4-40
- sorting data, 4-13, 4-35 to 4-48
  - adding sort columns, 4-38 to 4-41
  - automatically, 4-43
  - crosstabs and, 4-43, 4-46, 4-48
  - display options, 4-37
    - group sorting and, 4-38, 4-41 to 4-42
    - on new worksheets or workbooks, 7-11 to 7-13, 7-18
    - removing columns, 4-41
  - sorting options, 4-37, 4-47
  - sorting tools, 4-43
    - crosstabs and, 4-44, 4-45
  - spacing, 4-38
  - spreadsheets, 2-8, 6-12
  - SQL Inspector
    - Execution Plan, 8-27
  - SQL Inspector command, 8-24, 8-27
  - SQL program - importing, 8-25
  - SQL statements, 8-24
  - SQL syntax, 8-15
  - SQLType - registry setting, 8-33
  - standard deviation, 5-14
    - calculating, 5-20
  - Standard Deviation option, 5-20
  - starting
    - Discoverer Desktop, 1-8
  - Statistics, A-30
  - status bar, 2-3
  - Status Bar command, 3-5
  - subqueries, 8-16
    - edit, 8-20
    - new workbooks, 8-20
  - subqueries, correlated items, 8-18
  - subqueries, creating, 8-17
  - subtotals, 2-25, 2-26
    - adding lines to, 4-38
    - getting, 4-41, 5-22
    - getting percentages for, 5-31
    - placement options, 5-22
    - removing, 5-18
    - ungrouped data and, 4-42
    - viewing definitions, 5-18
  - Sum option, 5-20
  - summaries, 2-6
  - sums, 5-14, 5-20
  - suqueries
    - editing, 8-17

## T

---

### table

larger than a page, 6-4

tables, 1-5, 1-6, 2-5, 6-1

arranging items on new, 7-8

changing sorting preferences, 7-18

data points and, 2-4

delineating data, 2-24, 4-38

drilling and, 4-21, 4-22, 4-23, 4-30

    procedure described, 4-24

    skipping hierarchical levels, 4-27, 4-28

duplicating, ?? to 4-13

editing layouts, 7-14, 7-16

item markers and, 2-13

layout options, 8-21

moving columns, 2-18, 4-40

    group sorts and, 4-41

pivoting items, 4-6 to ??, 4-7 to ??

reformatting column headings, 2-22 to 2-23

reformatting data, 2-24

resizing columns, 2-20 to 2-21

    automatically, 2-21

retrieving rows, 8-1

scaling, 6-4

selecting as display type, 7-2

selecting items, 2-9, 2-10, 2-11

sorting data, 4-37, 4-41

    automatically, 4-43

with multiple pages, 2-5, 2-16

tabs, 1-16, 2-4

templates (Oracle Reports), 6-15

### text

aligning

    in column headings, 2-23

case-sensitive filters, 5-41

data points and totals for, 5-21

defining conditions for, 5-41

editing, 2-21, 2-28

finding specific, 5-11

getting exceptions to, 5-11

mathematical functions and, 7-6

resizing columns and, 2-20

sorting, 4-43, 4-46, 4-48

word wrapping, 2-23, 5-24

### text codes

adding to labels

    percentages columns, 5-32

    totals and subtotals, 5-23

removing, 5-24, 5-32

report headers/footers, 6-5

Text Wrap button, 2-20

three-dimensional graphs, 3-16

time estimate dialog, 1-12

time limit warnings, 6-18

time settings for scheduled reports, 6-19

time stamps, 2-28

Title command, 2-27

### titles

adding bitmaps, 2-31

adding to graphs, 3-3, 3-7

editing, 2-28

formatting, 2-26 to 2-30

totals and subtotals, 5-22

### tool bar

Graph window, 3-3, 3-4

Print Preview window, 6-8

tool tips, 2-3

Toolbar command, 3-4

Total dialog box, 5-19

totals, 2-25, 2-26, 5-14 to 5-25

    adding lines to, 4-38

    creating definitions for, 5-19

    editing definitions, 5-25

    enabling/disabling definitions, 5-18

    entering labels for, 5-22

    finding percentages of, 5-31

    formatting options, 5-24

    getting percentages for, 5-31

    placement options, 5-22

    removing, 5-18

    viewing definitions, 5-18

Totals command, 5-18

Totals dialog box, 5-18

Totals tool, 5-14

    options, 5-20

transaction processing, 8-2

trends, 4-1

truncated text, 2-20

Two Page button, 6-9

## U

---

unavailable folders, 7-4  
unique values, 5-20  
Unschedule button, 6-25  
updating graphs, 3-9  
updating worksheets, 8-2  
User -> Workbook tab, 6-28  
user names, 1-8

## V

---

Value(s) option (Conditions), 5-39, 5-41  
values, 7-5  
    counting unique, 5-20  
    creating conditions for, 5-39  
    getting exceptions to, 5-6 to 5-14  
        defining expressions for, 5-11  
    getting totals and subtotals for, 5-20  
    null, 5-40  
    selecting multiple for conditions, 8-16  
    sorting and duplicate, 4-48  
    viewing for zxis items, 7-5  
variables, 4-48  
Variance option, 5-20  
vertical gridlines, 3-9  
Video database, 2-1  
video files, 8-21  
Video.dis - OLE demonstration workbook, C-1  
View Conditions For option, 5-36  
View Errors option, 6-26  
Viewer checkboxes, 8-21  
viewing  
    business areas, 7-4  
    data, 1-2, 1-5, 2-5, 2-15  
        specific items, 5-34, 8-13  
    file types, 8-21  
    graph labels, 3-4, 3-5, 3-12  
    graphs, 3-17  
    items in folders, 7-4  
    multi-page reports, 6-8  
    page headers/footers, 6-5  
    sorted data, 4-37  
    SQL statements, 8-24, 8-27  
    text, 2-20  
    workbooks, 1-13

worksheets, 1-16  
views, 1-5

## W

---

weekly reports, 6-18  
“what if” scenarios, 8-8  
Window menu, 1-13  
wizards  
    for creating graphs, 3-3  
    for creating workbooks, 7-2  
    for opening workbooks, 1-9  
WMF formats, 6-11  
Workbook -> User tab, 6-28  
Workbook Properties dialog box, 1-16  
workbook window, 2-1 to 2-4  
    display types, 2-5 to 2-7, 7-2  
    resizing, 2-35  
Workbook Wizard, 1-9, 7-2  
workbooks, 1-4, 7-1  
    accessing, 6-26  
    assigning to users, 6-26, 6-28  
    associating data with, 2-3  
    canceling changes, 1-18  
    closing, 1-18  
    creating, 1-9, 7-1, 7-2 to 7-14  
        optional steps, 7-2  
    creating subqueries, 8-20  
    defined, 1-5  
    deleting, 1-20  
    getting information about, 1-16  
    identifying location, 2-28  
    opening, 1-8, 1-9, 8-21, 8-23  
        multiple, 1-13 to 1-15  
        non-Oracle, 1-15  
    reformatting, 2-18 to 2-32  
    removing items, 7-7  
    renaming, 1-19  
    saving, 1-18 to 1-20  
    selecting, 1-11, 1-14  
    selecting data, 7-3  
    selecting display types for new, 7-2  
    selecting multiple items, 7-6  
    setting properties, 1-15 to 1-16  
    sharing, 6-26 to 6-28

switching pages, 1-16 to 1-18, 2-15  
viewing, 1-13

#### worksheet

change subquery, 8-20  
for subqueries, 8-18

worksheet tabs, 1-16, 2-4

worksheets, 1-5, 7-1

activating all, 8-23

adding bitmaps, 2-31

adding graphs, 3-2, 3-5 to 3-9

adding items to new, 7-15

changing data, 1-18

choosing items, 2-8 to 2-15

in multiple positions, 2-8

creating, 7-1, 7-2 to 7-14

optional steps, 7-2

deleting items on new, 7-15

distributing via e-mail, 6-10

drilling across, 4-30, 4-31

editing new, 7-14 to 7-19

editing titles, 2-28

formatting items, 2-18 to 2-30

identifying workbook location, 2-28

large, 8-21

printing large, 6-4

refreshing, 8-2

removing items, 7-7

replacing data, 4-33

retrieving data, 1-7, 1-11, 1-17

for new crosstabs, 7-5

scheduled reports and, 6-18

selecting, 1-16 to 1-18, 2-15

selecting data, 7-3

selecting display types for new, 7-2

selecting multiple items, 7-6

viewing, 1-16

Wrap Text option, 2-23, 5-24

setting, 3-9, 3-11

## Z

---

z-axis, 3-18

Zip Codes, 5-11

zoom in, 6-9

zoom out, 6-9

## X

---

X Labels command, 3-12

## Y

---

y-axis scale, 3-3

