

Oracle Discoverer™ 4i Plus

User's Guide

Release 4.1 For the Web

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Preface

This guide explains how to use Oracle Discoverer 4i Plus.

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.

Conventions

In this guide, Discoverer refers to Oracle Discoverer 4i Plus.

The following conventions are used in this manual:

Convention	Meaning
boldface text	Boldface type in text indicates a command name, menu name, or other choice or selection.
menu command selection	Boldface type separated by a vertical bar indicates a menu name and the command to select from the menu. For example, File Open 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.

Getting Started

Introducing Discoverer 4i Plus
Working with Discoverer
Looking at the work area
Learning more about Discoverer

Introducing Discoverer 4i Plus

Discoverer 4i Plus is the Internet version of the award-winning Windows product, Discoverer Plus. If you are already familiar with the Windows product, you will recognize the Internet version's features. The two versions are compatible; and you can share work between them.

With Discoverer, business professionals like you can get and analyze data that you know is in a your company's database—without having to understand difficult database concepts. Using Wizard dialogs and menus, Discoverer guides you through the steps to get and analyze data that supports your business decisions. Discoverer does most of the hard work for you.

New Discoverer Features

Discoverer 4i Plus Release 4.1 contains the following new features:

- Analytic Functions - perform complex mathematical analysis with this extended range of statistical functions, (see Analytic Function Examples).
- Charting - analyze your information visually using a wide range of 3-Dimensional graphs, (see Graphing Your Data).
- Export - export your Worksheets to many different formats using the new Export Wizard, including quick format options for HTML and Microsoft Excel, (see Exporting Data to Other Application Formats).
- Improved Formatting - format your Worksheets more easily, (see Choosing Font Options).
- Oracle Applications - connect to Oracle Applications EULs as well as standard Discoverer EULs, (see Appendix , “Oracle Applications Support”).
- Printing - print your Worksheets more easily using the new Print Wizard, (see Printing Worksheets and Graphs).
- SQL Inspector and Execution Plan - when using Oracle 8i, monitor the Oracle database server execution plan, (see Using SQL).
- Workbook Identifiers - manage unique Workbook Identifiers, (see Looking at a Workbook's Properties).
- Workbook Level Parameters - create Parameters at Workbook and Worksheet level, (see Creating Parameters).

Using Discoverer to support your business decisions

Business professionals rely on a broad skill set to make effective and profitable business decisions. You rely on your education, experience, and instinct to make the right decisions when money is at risk. With the addition of empirical data, you can make better-informed decisions.

Currently, many large organizations hire highly-paid information technology (IT) professionals who get data out of databases and provide it to decisions makers. This process can be slow and costly. And typically, few people benefit from the knowledge derived by this method. However, with Discoverer, you or anyone else with database-access privilege can get data from databases delivered right to your desktop computer. With Discoverer, get the information you need, make better-informed business decisions, and share them with other people in persuasive ways.

[Click a link to learn more about:](#)

[Working with Discoverer](#)

[Looking at the work area](#)

[Learning more about Discoverer](#)

Working with Discoverer

As you become more familiar with Discoverer, you will find a workflow that suits you best. Typically, using Discoverer is a three-part process:

- Getting the data you want.
- Analyzing your data.
- Sharing your data with others.

Key concepts and terminology in Discoverer and its documentation use this three-part process to help you make best use of Discoverer.

Getting the data you want

Your company's database contains data that supports your business decisions. However, getting data from a large corporate database can be difficult. Discoverer is designed to help you get data by simply dragging and dropping items in a Wizard dialog. You do not need to understand database concepts, the SQL language, or how your company's database organizes information.

A Discoverer Administrator at your company organizes the data in your database into business areas. A *business area* contains information that pertains to a particular department or job function. For example, your Discoverer Administrator may create separate business areas for the Accounting, Sales, and Manufacturing departments. With business areas, you see only the data that interests you and do not have to search through all the data that your company's database contains. [Click for more information about Getting the Data You Want.](#)

Analyzing your data

Your ultimate goal in using Discoverer is to analyze your business and arrive at a profitable business decision. To do this, you may ask yourself questions about your business. For example, how did Product A sell last month? How does this figure compare to sales in the same month over the last five years? How did Product A sell by branch, region, and territory? Did commissions and pricing affect how sales people sold the product? Did particular sales people do a better job of selling the product? With Discoverer's data analysis tools, you can find the answers to these and other business questions.

After you select the data you want, Discoverer presents it to you in a spreadsheet-like format. Discoverer provides you with powerful tools that help you analyze this data. You may already be familiar with sorting rows and columns. In addition to sorting, you can also pivot your data to create comparisons. You can drill into data to see deeper levels of detail or related information that is also stored in the database. You can create totals, calculate percentages, and even create custom calculations on your data. And whenever you want, you can create graphs from your data. Your end result is a collection of worksheets and graphs that persuasively supports your business decisions. [Click for more information about Analyzing Data.](#)

Sharing your data with others

After you get and analyze your data, you will want to share your results with other people at your company, customers, or business partners. If these people also have Discoverer, you can share your workbooks with them. You can store your workbooks in the database and schedule them to update at regular intervals. Or, you can export your workbooks into popular application formats, such as Excel spreadsheets or HTML for the Web. [Click for more information about Sharing Results with Others.](#)

Key concepts and terminology

Before using Discoverer, take a moment to familiarize yourself with some key concepts and terminology. The terms below appear in the product's dialogs and in its documentation.

Workbooks. A workbook is a collection of worksheets. A *workbook* contains data that is related in some way but organized to show different perspectives. For example, you may decide to create a workbook to show the sales history for Product A. However one worksheet could show sales for last month, another worksheet could show sales compared to the same month five years ago, and another could show sales per region. All three worksheets contain sales data related to Product A, but each is organized to show a different perspective.

Worksheets. Worksheets contain the data you want and allow you to analyze and share it. Each worksheet is created by its own query. Every time you open a worksheet, Discoverer sends its query to the database to get the most current data.

Queries. Every time you open a worksheet or create a new one, Discoverer sends a query to your company's database. A *query* is a question that Discoverer asks the database in order to get the data you want. For example, how did Product A sell last month? Queries are written in SQL, a language that databases understand. You do not need to understand SQL to communicate with the database. Discoverer writes the SQL query for you.

Items. In the Workbook Wizard, you select items to get the data you want. An *item* is a name for data that is stored in your company's database; for example, the item "Department" is the name for all the departments at your company. Discoverer uses these items to write a SQL query. When the database returns the data that answers the query, the items you chose appear as row and column headings in a spreadsheet-like format.

Page Items. This special item groups a worksheet's data into separate "pages". By selecting different Page Items in the Page Item drop-down list, you are actually switching pages within that worksheet.

See also:

[Introducing Discoverer 4i Plus](#)

[Looking at the work area](#)

[Learning more about Discoverer](#)

Looking at the work area

Discoverer provides many features to make your decision-making job easier. In addition to a standard Menu bar and Tool bar, Wizard dialogs such as the **Workbook Wizard** make much of the process of getting data easier.

See also:

[Introducing Discoverer 4i Plus](#)

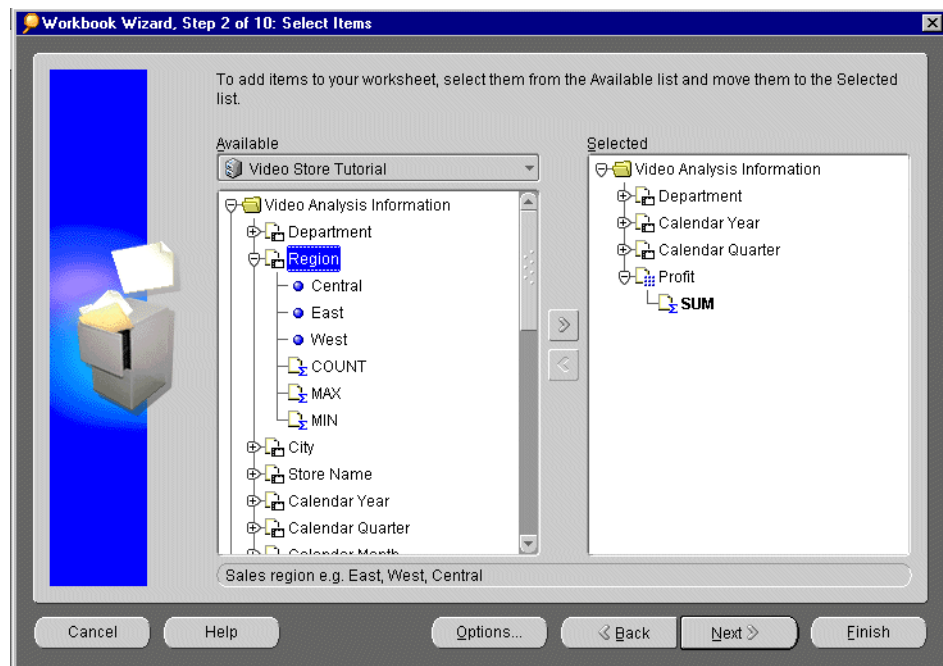
[Working with Discoverer](#)

[Learning more about Discoverer](#)

Workbook Wizard

Whenever you create a new worksheet, the **Workbook Wizard** walks you through the steps necessary to get data from the database. The **Workbook Wizard** represents data as file cabinets, folders, and items. Simply click the folder or item you want and drag it to the Selected column. Your worksheet will contain only the items you select.

Figure 1-1 The Discoverer Workbook Wizard

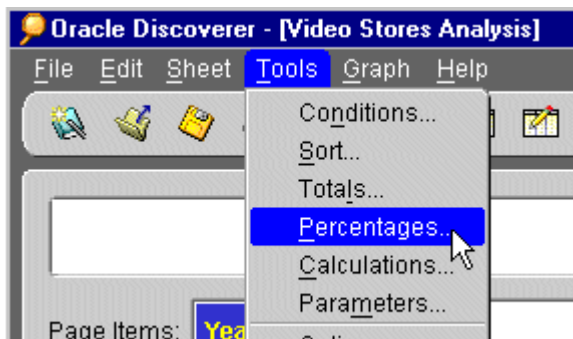


Menu bar and Tool bar

Discoverer provides you with a standard menu bar and tool bar. The menu bar includes selections for common tasks such as printing, saving files, and getting Help. The tool bar includes shortcuts for your most common tasks.

Much of the power of Discoverer is accessible from the menu bar. Each menu selection provides you with a dialog or Wizard to help you perform a task.

Figure 1-2 Discoverer Menus



The tool bar shows you icons that perform the same tasks as the most common menu selections, such as: Save, Print, Refresh, Sort, and Export to Excel. As you become more familiar with Discoverer, use the tool bar to save you time.

Figure 1-3 The Discoverer Tool Bar



Learning more about Discoverer

To learn more about using Discoverer, refer to its documentation. You have several forms of documentation from which to choose.

See also:

[Introducing Discoverer 4i Plus](#)

[Looking at the work area](#)

[Working with Discoverer](#)

Tutorial. The first time you use Discoverer, try its online Tutorial. The Tutorial walks you through all basic tasks, which are divided into five short lessons.

Discoverer 4i Plus User Guide. Oracle provides printed User Guides for all of its products. However, you must order the User Guide separately from the software. If you want a printed User Guide, see the Discoverer Administrator at your company.

Online Manual. The entire Discoverer Plus User Guide is available free-of-charge as a continuous HTML document. You can view it online in a Web browser or print it out for future reference. From the menu bar, choose Help | Manuals.

Online Help. All topics covered in the User Guide are included in Discoverer's online Help system. However, the Help system is designed to be used *while* you are using Discoverer. It presents you with only the information you need at any given time. From the menu bar, choose Help | Help Topics.

Context-sensitive Help. As you are using Discoverer, you may wonder the purpose of a button or text field on a Wizard or dialog. The context-sensitive Help topics describe all the buttons and fields on dialog boxes and include hypertext links to procedural topics in the online Help system. Click the Help button on that dialog to see its context-sensitive Help topic.

Getting the Data You Want

Getting specific data—the data that you want to see—from your company’s database involves four basic steps:

1. **Open the workbook that contains the data you want.** If several workbooks exist, you open the one that contains the specific data you want. For example, from a set of workbooks created for a fictitious video store retail chain, you can open the sales workbook to check monthly profits, and then open another workbook to see how your store renovation program is progressing. [Click to learn more about Opening an Existing Workbook and Viewing Scheduled Workbooks.](#)
2. **As part of the process to open a workbook, select from choices, called *Parameters*, that define the precise data you want to see in the workbook.** One Parameter might be the name of cities where your company has stores. To see profits from New York and Los Angeles, there’s no reason to display data from every other city. So, when opening a workbook you choose those two cities, and the workbook opens with exactly the data you want. While working with that data you can always get the sales figures from the rest of the cities as well. [Click to learn more about Finding Specific Data When a Workbook Opens.](#)
3. **Reduce the amount of data by using Conditions.** Conditions filter data and display only the data that meets the Conditions. For example, a Condition might be “find all the stores that did not meet their sales goals in the first quarter and that had fixed expenses greater than 40% of revenues.” Discoverer compares the worksheet’s data to the Condition, and then displays only the data that meets the Condition. [Click to learn more about Finding Specific Data When a Workbook Opens.](#)
4. **Create a new workbook, if necessary.** If none of the workbooks meet your requirements you can create a new one, customized for displaying exactly the right combination of data. To create a new workbook, you must have the appropriate database privileges. Please see your Discoverer Administrator. [Click to learn more about Creating a New Workbook.](#)

Opening an Existing Workbook

If you have questions about the Discoverer workbook names, whether you have access to them, the location of workbooks on company servers, and so on, see your Discoverer Administrator. The Discoverer Administrator also supplies the passwords and server access instructions that you need to connect to your company's database and open a Discoverer workbook.

To open a workbook you first connect to your company's database. Choose the workbook to open from the Open Workbook from Database dialog. One workbook can be open at a time. To open another workbook you close the workbook already opened. You can open a workbook in your database account, or in another person's account which is shared to you.

[Click to learn how](#)

[To connect to your company's database:](#)

[To open a workbook:](#)

[To open a scheduled workbook:](#)

[See also:](#)

[Viewing Scheduled Workbooks](#)

[Opening Workbooks in a Non-Oracle Database](#)

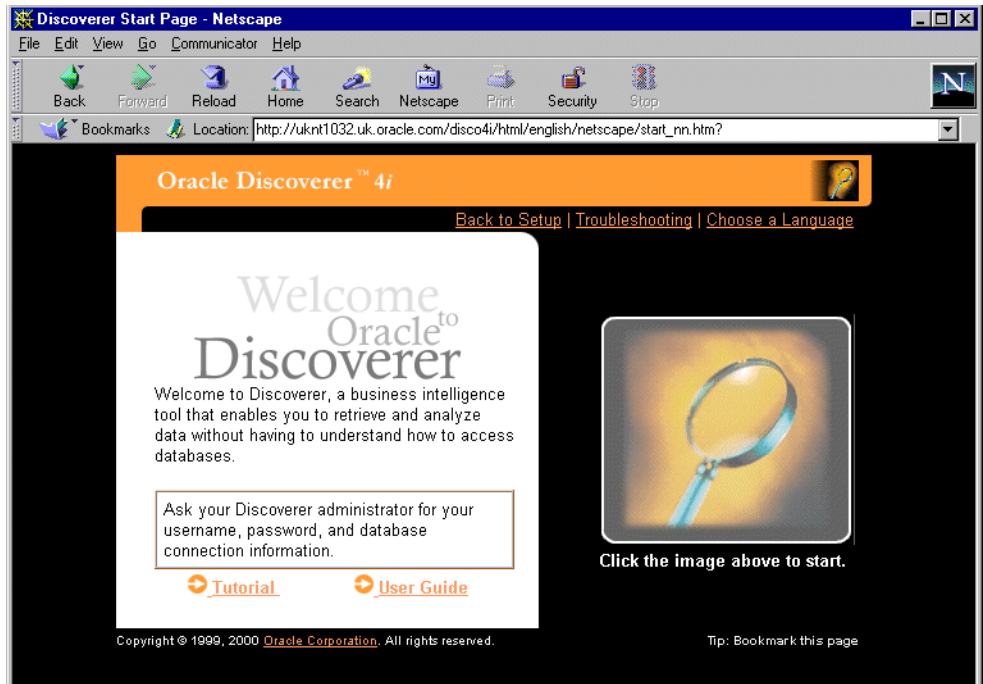
[Creating a New Workbook](#)

To connect to your company's database:

1. Launch your Web browser.
2. Go to the Discoverer Web site address that your Discoverer Administrator gives you.
3. Depending on the Web browser you are using and your company's Web server configuration, you may need to follow a one-time-only set up process. See your Discoverer Administrator for details.

You may also see a dialog about security. This security dialog appears because Discoverer requests extra permissions so it can access the Discoverer server or local devices, such as a printer. If you don't want to see this dialog every time you connect, click the option "Always trust content from Oracle Corporation." Click **Yes** (or **OK** or **Grant** depending on the type of dialog) to continue launching Discoverer.

A Welcome page appears.



4. Click the **Click to Start** icon.
The **Connect to Oracle Discoverer** dialog appears.

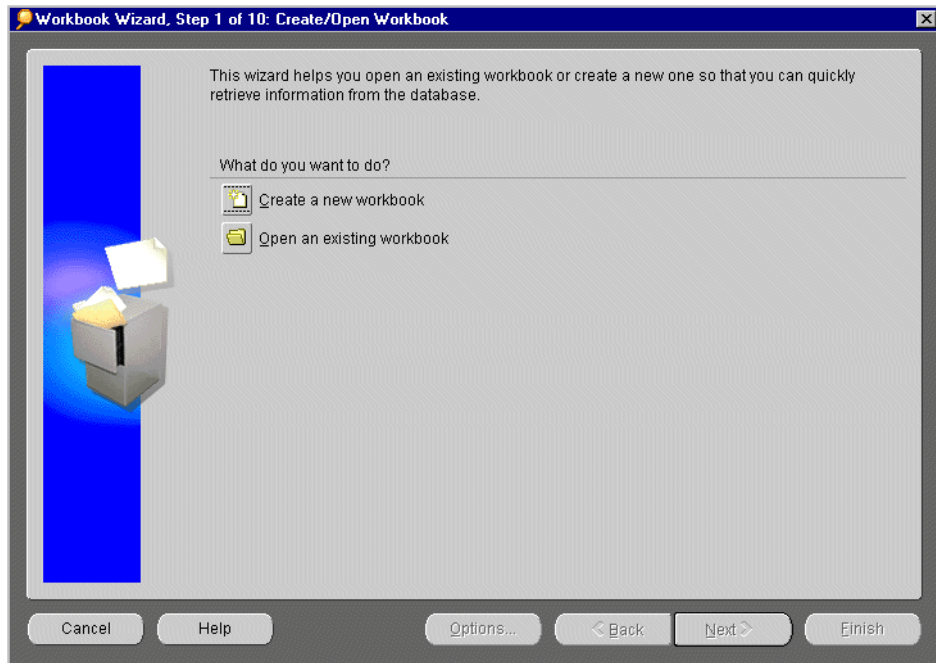


5. Type the username, password, and database name given to you by your Discoverer Administrator.

NOTE: For information about connecting to an Oracle Applications EUL, see Appendix , “Oracle Applications Support”.

6. Click **Connect**.

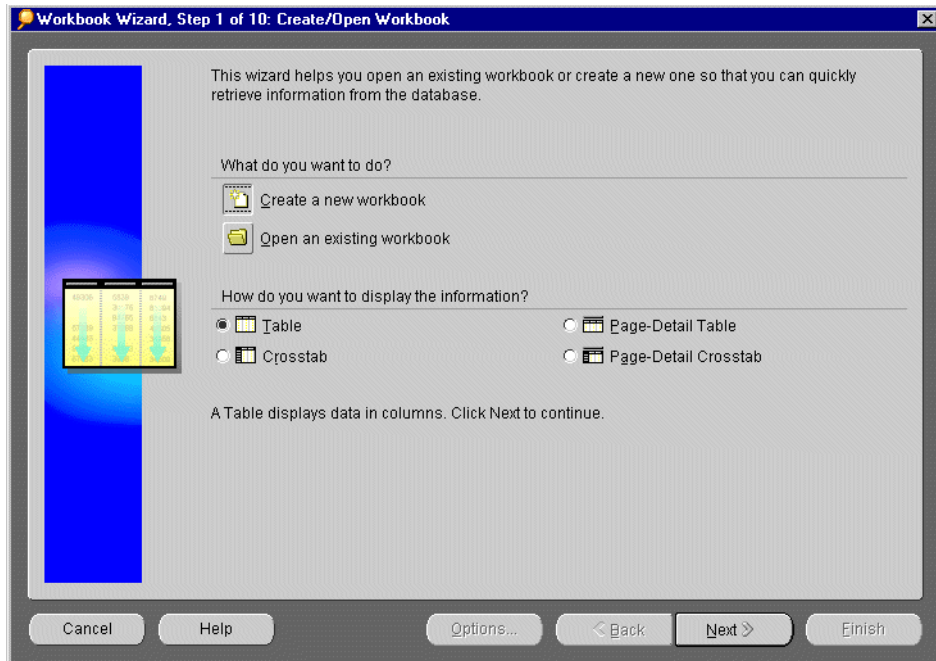
The **Workbook Wizard** appears, which means you are connected to the database and ready to use Discoverer.



To open a workbook:

1. Click **Open an existing workbook**.

The dialog then shows options for opening a workbook from the database or a scheduled workbook.

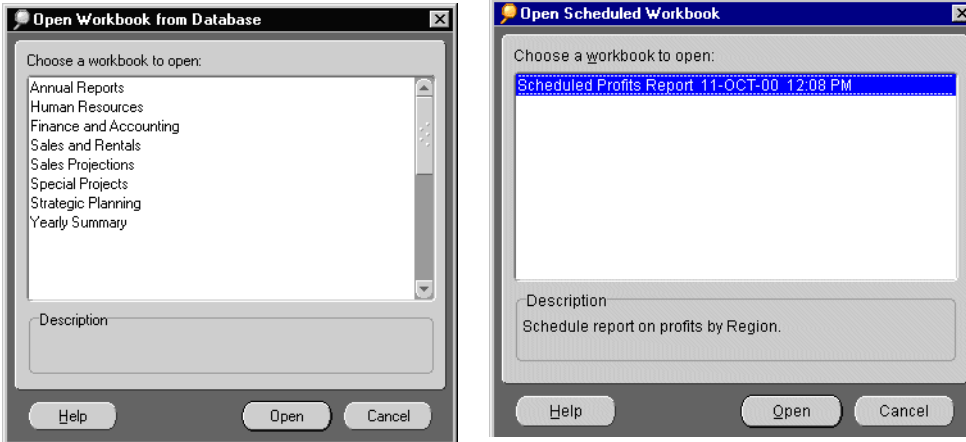


2. Select one of the following:

Database—displays a list of workbooks in the database to which you are connected.

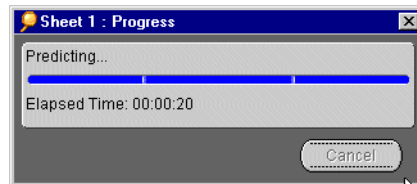
Scheduled—displays a list of scheduled workbooks that have run and are now available. Scheduled workbooks run automatically at the time you specify, usually overnight, on the weekend, or at some periodic interval. You can view the most current results when you open the scheduled workbooks.

NOTE: If the button for opening a workbook from the database is not available, you can only open scheduled workbooks. Your Discoverer Administrator decides the types of workbooks you can open.



- Depending on your selection, either a list of stored workbooks or a list of scheduled workbooks appears. Select a workbook that contains the data you want to see, and click **Open**.

The workbook opens. Discoverer evaluates the query to determine how much time it will take to open the first worksheet. Depending on the default options you've selected for opening worksheets, a progress dialog shows you the time estimate for loading the first sheet. See Setting General Options for the choices to load a worksheet.



The worksheet appears. If the workbook has more than one worksheet, a series of tabs across the bottom of the window name the various worksheets.

NOTE: The first worksheet in the workbook is not necessarily the first active worksheet.

- If the time estimate exceeds the value you set in the General Options, a dialog opens to alert you. If the query time lasts more than a few minutes you can do other work while Discoverer gets the data for the worksheet, or you can run the query at another time.

Do one of the following:

Click **Yes**. The query finds the most recent data and fills in the worksheet.

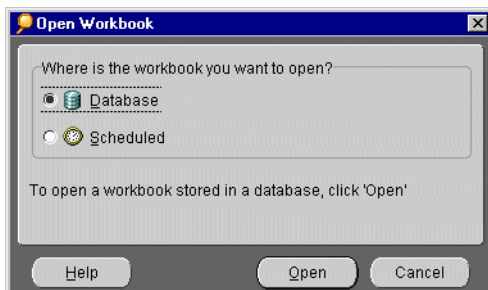
Click **No**. The worksheet opens but does not contain any data. Click **No** if you want to see another worksheet with data first. Click that other worksheet's tab at the bottom of the window.

NOTE: If you click **No**, you can always run the query for the worksheet at a later time by choosing **Sheet | Refresh Sheet**.

If you click **Yes**, and if the workbook has Parameters for the data, you'll see a dialog for selecting those Parameters.

To open another workbook:

1. From the menu, choose **File | Close** to close the current workbook.
2. Choose **File | Open**. The Open Workbook dialog appears.



Note: Only one workbook at a time can be open. If you choose **File | Open** while a workbook is already open, the current workbook closes automatically.

3. Select one of the options and click **Open**.

You can connect to only one database account at a time. For example, if you are connected to Account1 but want to open a workbook saved in Account2, you must disconnect from Account1 then connect to Account2. However, if you have access to a shared workbook, you can open that workbook in your current account.

Opening Workbooks in a Non-Oracle Database

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

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

Viewing Scheduled Workbooks

Scheduled workbooks run at a specified time. For example, you might want to run a workbook at the end of each month that calculates monthly profits from monthly sales figures, or you might want to run a workbook every two weeks based on a biweekly cash-flow analysis.

Often, workbooks that you want to schedule are designed specifically for that purpose, rather than for your day-to-day analysis. For example, the workbook might include special calculations or Conditions that produce the results you want on a periodic basis only.

See your Discoverer Administrator to schedule a workbook. You must have appropriate privileges to schedule a workbook.

Typically you schedule workbooks if:

- The workbook will take a long time to run; scheduling a workbook to run at night or on the weekend avoids overburdening the server during business hours.
- You want to run a workbook at regular intervals, such as a 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 on overnight (or whenever you schedule the report to run). The results of the scheduled report are saved on the server and are available when you connect to the database and start Discoverer.

A scheduled workbook produces a worksheet or set of worksheets with the results derived from running the workbook. You can open a scheduled workbook when you start Discoverer, or while working in a workbook. If you run a scheduled workbook overnight (or over the weekend) and want to see the results first thing the next morning, open the workbook as you connect to Discoverer.

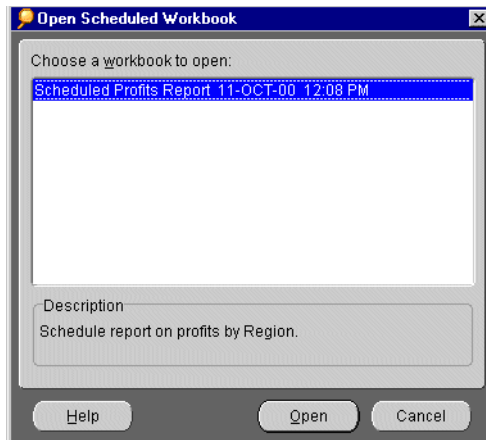
Viewing Scheduled Workbooks when connected as an Oracle Applications User

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.

To open a scheduled workbook:

1. Do one of the following:
 - Connect to the database and launch Discoverer as described in Section , “Opening an Existing Workbook”.
 - If you are already connected to the database, from the menus choose **File | Open**. The Open Workbook dialog appears.
2. Click **Scheduled** and click Open. The dialog lists the scheduled workbooks.



3. Select the scheduled workbook you want to see and click **Open**.

NOTE: The worksheets produced by running the scheduled workbook contain data derived specifically for that report and you can work with the worksheet in the normal manner. But if you change any of the data, a message reminds you that the new data on the worksheet is not the same as that derived from the scheduled workbook.

Finding Specific Data When a Workbook Opens

Databases often contain enormous amounts of information, and one key task necessary to work with a database efficiently is to find the specific information you want to see or analyze. Discoverer has a number of ways to filter out the data that you don't need to see and to find the specific data you want. Discoverer has filtering techniques both when you open a workbook initially and as you are working with the data.

The two basic ways to filter out unnecessary data and find the specific information you want when opening a workbook are to select *Parameters* and to apply *Conditions*.

- **Parameters** offer pre-defined choices of data when you open a workbook. For example, suppose you are opening a workbook containing data about retail outlets in stores across the nation, but you only want to see the data from stores in New York and Los Angeles. If one of the Parameters is “City,” you can choose New York and Los Angeles as the data values for that Parameter. When the workbook opens it shows data from only those two cities—exactly what you want to see. Without the Parameter, the workbook opens with data from all the cities. [Click to learn more about Parameters.](#)
- **Conditions** also filter the data to display only the exact information you want. Suppose, for example, a workbook contains five years of data, but you only want to see data from 1998. By applying the Condition statement of Year=1998, the workbook opens and displays data only from the year 1998. Condition statements tell Discoverer to find and display only the data that meets the Condition. [Click to learn more about Conditions.](#)

Parameters actually use Condition statements to find specific data. However, unlike regular Conditions that find the same data each time they're applied, Parameters offer choices at the time the worksheet opens. For example, if the two Parameters for a worksheet are Department and City, the underlying Condition statement is “Find all the data about <Department> for a <City>”. The two Parameters are essentially placeholders in the Condition statement until the person opening the worksheet picks a data value for each one. Then, Discoverer finds all the data based on the selected values. [Click to learn more about Using Conditions.](#)

Although similar, Parameters and Conditions are designed for different purposes. Parameters offer you a choice and help you open a workbook quickly to see just the data that you want to see. Conditions are specific, fixed statements. Conditions are designed more for analysis so you can apply Condition statements while you are involved with data analysis to find very specific sets of data. However, Conditions and Parameters can also be used with each other for more sophisticated filtering procedures.

Parameters

The main benefits of using Parameters are:

- you can choose the specific data to see on the worksheet
- worksheets open more quickly because the amount of data on a worksheet is limited by the choices offered by the Parameter
- if several people are using a worksheet, each person can open the worksheet and get just the data of interest to themselves

A Discoverer user often creates Parameters when creating the initial workbook. However, anyone with the proper access rights (granted by the Discoverer Administrator) can create Parameters too. When creating or choosing Parameters, the term *data values* refers to the choices offered by the Parameter. For example, if the Parameter is for choosing the cities for which you want to see data, the city names are the data values, that is, New York, Los Angeles, Denver are the data values for the Parameter to choose cities.

When opening a workbook you'll choose the data values for the Parameters. But if the Parameters do not offer the choices you want, you can create your own data values.

[Click to learn how:](#)

[To create a new Parameter:](#)

[To edit an existing Parameter:](#)

[To select different Parameter values:](#)

[See also:](#)

[Choosing Data Values for Parameters When a Workbook Opens](#)

Choosing Data Values for Parameters When a Workbook Opens

When opening a worksheet with pre-defined Parameters, a dialog lists the Parameters so you can select the ones you want on the worksheet.

Note: Although choosing a data value for a Parameter limits the data initially displayed on the worksheet—for example, you limit the data to New York only—Parameters do not limit the data available for the worksheet as you are working with it. You can always add any additional data as you are working on the worksheet. Also, you can change Parameter values every time the query is refreshed, and you can edit Parameter values from the menu.

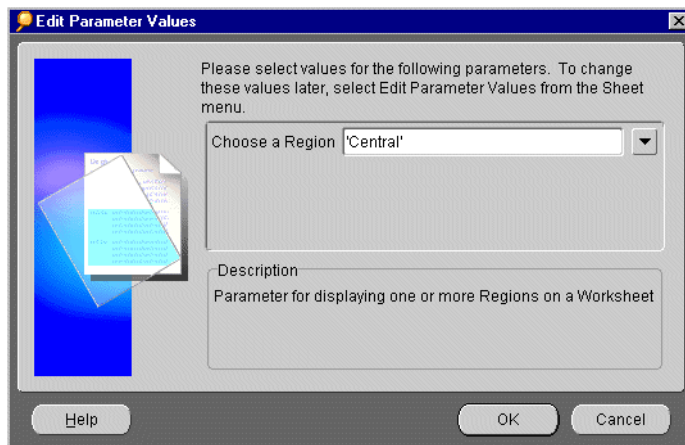
Depending on the design of the Parameters, you can choose:

- a data value for a single Parameter
- multiple data values for a single Parameter
- data values for multiple Parameters

To choose a data value for a Parameter:

1. Open a worksheet. If Parameters are defined for the worksheet, a dialog lists the Parameters available for it. The default value is in the text box next to each Parameter.
2. Choose a data value for the Parameter by doing one of the following:
 - To choose the default value, click **OK**
 - To choose a value other than the default value, click the down arrow next to the text field. From the drop-down list, choose the data value(s) you want. Then click **OK**.

The worksheet appears and contains data only for the values you chose. In the example below, the Parameter value Central is selected. The resulting worksheet contains data only for the Central region.

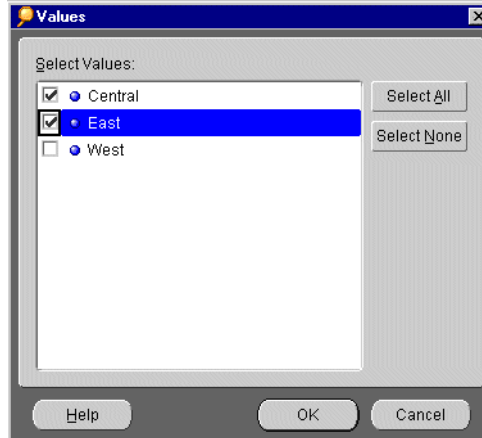


Page Items: Year: 2000

	> Region	Department	Profit SUM
1	Central	Video Rental	\$26,157
2		Video Sale	\$69,493
3			Total for Central: \$94,651
4			Total for All Values: \$94,651

3. If the Parameter is set up to allow for multiple data values, you can select several data values when opening the worksheet. This type of Parameter selection offers complete flexibility to choose the exact combination of data to see. From the **Edit Parameter**

Values dialog, click the drop down arrow and choose **Select Multiple Values**. The **Values** dialog appears.

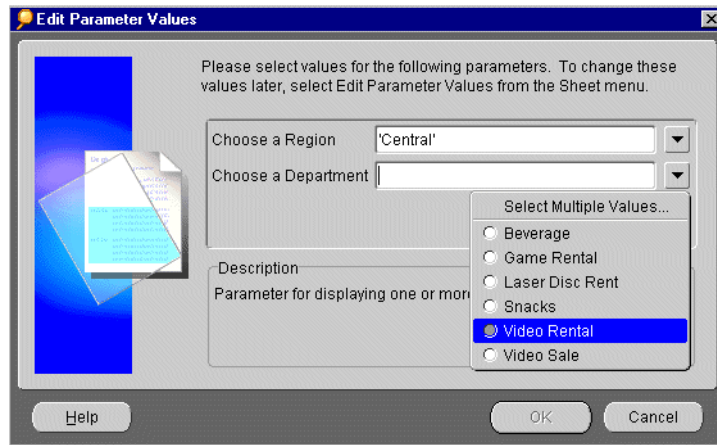


4. In the **Select Values** list, select the check box(es) next to the **Items** that you want to see in your **Worksheet**. To see all **Items**, click **Select All**.
5. Click **OK** on the **Values** dialog and then click **OK** on the **Parameters** dialog. The worksheet is refreshed to display only data from the **Items** selected.

Page Items: Year: 2000 ▾

	> Region	Department	Profit SUM
1	Central	Video Rental	\$25,157
2		Video Sale	\$69,493
3			Total for Central: \$94,651
4	East	Video Sale	\$109,637
5		Video Rental	\$40,402
6			Total for East: \$150,038
7			Total for All Values: \$244,689

6. If the workbook has multiple **Parameters** defined for it, click the drop down arrow next to each **Parameter** and select a data value for each one. The following example shows two **Parameters**—one for cities and the other for year—so you can select a combination of data to see.



Creating Parameters

Because Parameters use Condition statements to find specific data, creating a Parameter is similar to creating a simple Condition statement. You specify the data item to use for the Parameter, for example, the list of city names in your database, and then specify the choices available for that Parameter.

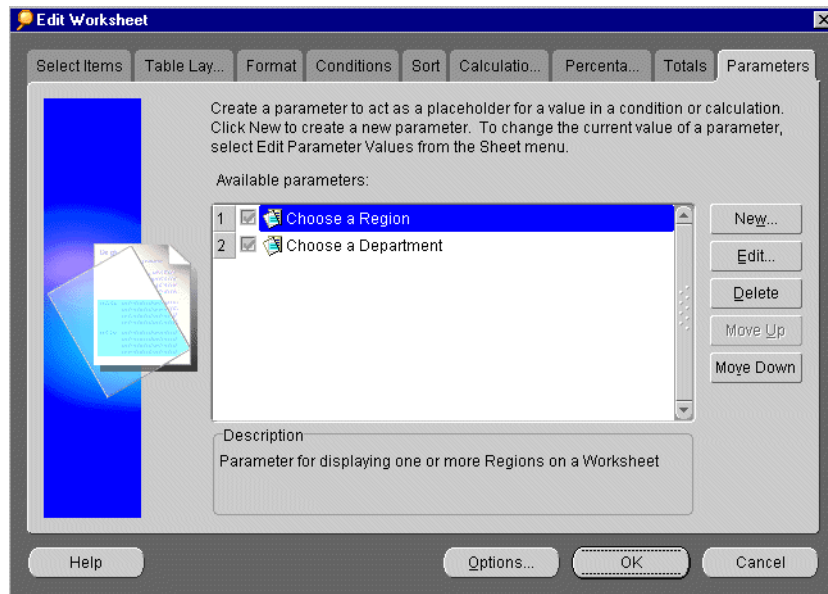
In addition to creating Parameters, you can edit them to change their default values, descriptions or headings. For example, if your company adds a new store to a sales region, you may want to edit the Parameter so that the new store is the default value for the **Store.Name** Parameter.

You can create Parameters at two levels:

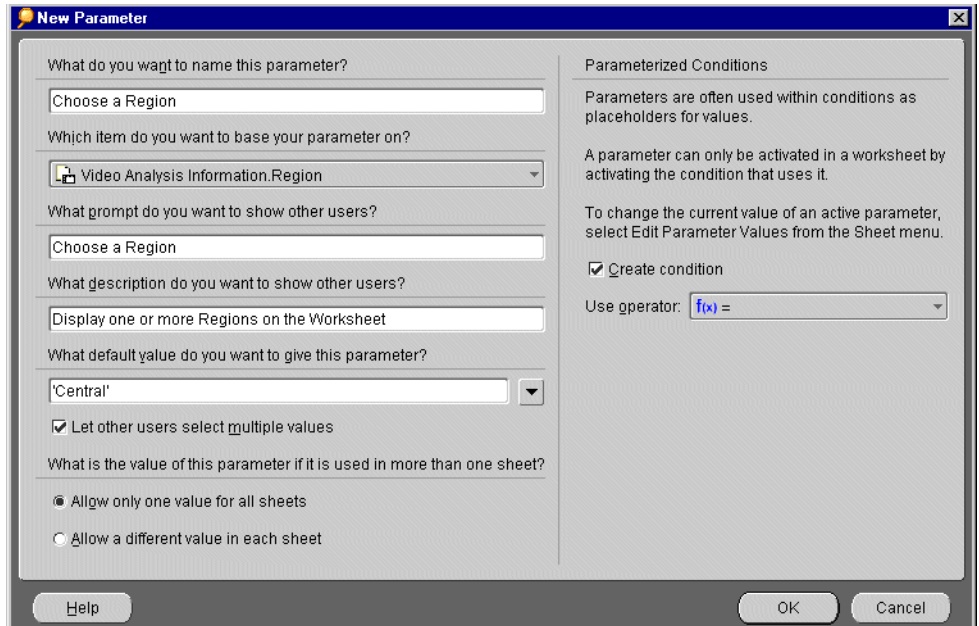
1. Workbook level - Here, the Parameter applies to all worksheets in your workbook. Changes to the Parameter in any worksheet cascade to all worksheets in the workbook.
2. Worksheet level - Here, the Parameter applies to the current worksheet only.

To create a new Parameter:

1. Display the worksheet to which you want to apply the Parameter.
2. From the menu choose **Tools | Parameters**. The **Edit Worksheet** dialog opens with the **Parameters** tab highlighted.



3. Click **New**. The **New Parameter** dialog appears.



4. Type in or select the features of the Parameter.

What do you want to name this Parameter—type the name that you want to appear in the Parameters dialog. If you don't type a name, Discoverer inserts a default Parameter name.

Which item would you like to base your Parameter on—select the data item for the Parameter from the drop down list. For example, to create a Parameter for selecting a city, select the data item that contains the city names. The list shows the data items currently used in the worksheet. It also shows all items related to the items selected in the worksheet and all calculations.

What prompt do you want to show to other users—this text appears in the dialog that appears prior to opening the worksheet; type text that prompts the user to make a selection.

What description do you want to show to other users—this text also appears in the dialog; it explains the Parameter.

What default value do you want to give this Parameter—this is the pre-selected data value for the Parameter. Click the drop down arrow and select a data value from the list, or type the default value directly into the box.

Let other users select multiple values—select this option if you want the person using the worksheet to be able to select multiple data values for the Parameter when opening the worksheet. If this option is not selected, the person can choose only one value for the Parameter.

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.

Parameterized Conditions refer to Condition statements that use a Parameter in their formulas. For example, if the Condition statement uses City in its formula, and you select New York as the data value for the Parameter, the Condition statement use New York as the City in the formula.

Create Condition/use operator—creates a Condition with an operator. You can select the operator from the drop list. For example, select equals (=) to create a Condition with the formula "For Item" = "Parameter's Name." A typical use of this feature is to find data values greater than (>) or less than (<) a data value. For example, to find all the data after the year 1997 the Condition formula is "Year" > 1997. The worksheet then appears with data from 1998 on.

Note: If you are creating a Parameter as part of a Condition, the portion of the dialog for creating Parameterized Conditions is not available because you are already defining a Condition.

5. Click **OK**. The new Parameter now appears in the Parameters dialog.

Moving the Parameters up and down in the Parameters dialog changes their position in the dialog that appears when opening a worksheet.

6. Click **OK** in the Edit Worksheet Parameters tab.

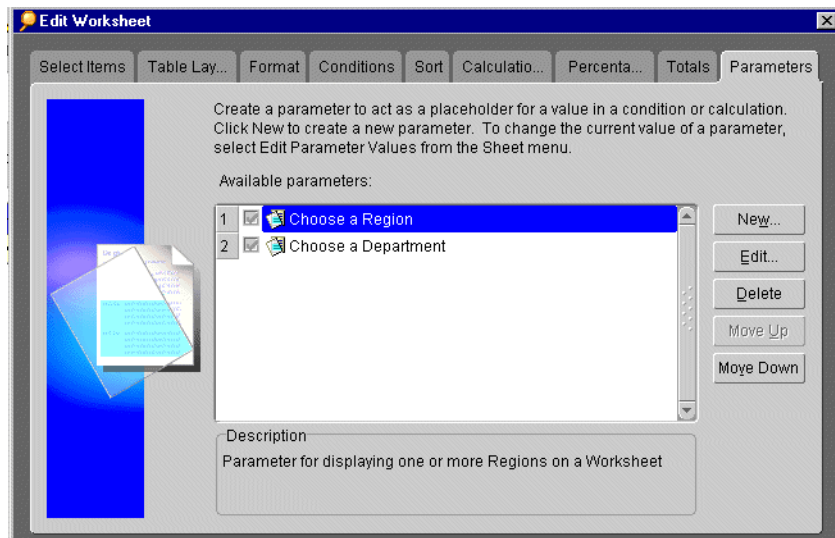
The Edit Parameter Values dialog appears, and you can specify the data value. The worksheet now displays the specific result for the data specified in the Edit Parameters dialog.

Parameters that are part of an active Condition are automatically activated as well. If you select the option **Create Condition/use operator** in the New Parameter dialog, a new Condition is created and activated, therefore the Parameter is also activated.

To deactivate a Parameter, deactivate the Condition. Deleting the Condition deletes the Parameter and vice versa.

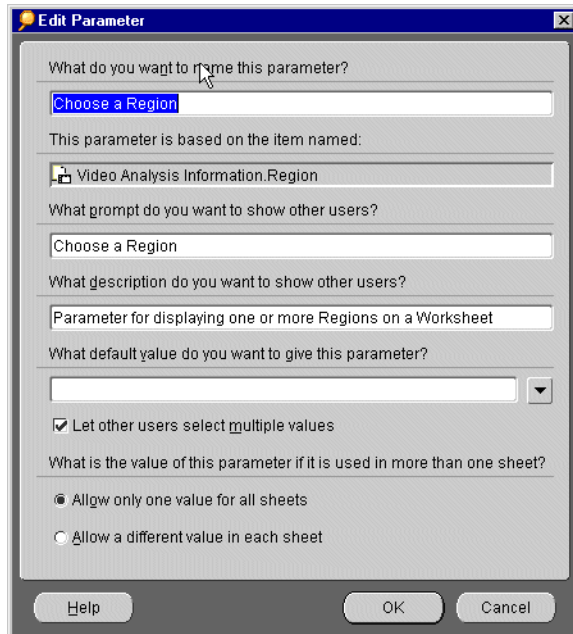
To edit an existing Parameter:

1. Display the worksheet to which you want to apply the Parameter.
2. From the menu choose **Tools | Parameters**. The **Edit Worksheet** dialog opens with the **Parameters** tab highlighted.



3. Click the name of the Parameter you want to edit and then click **Edit**. The **Edit Parameter** dialog appears.

Figure 2-1 Edit Parameter dialog



4. Type in or select the features of the Parameter that you want to change.

What do you want to name this Parameter—type the name that you want to appear in the Parameters dialog. If you don't type a name, Discoverer inserts a default Parameter name.

What prompt do you want to show to other users—this text appears in the dialog that appears prior to opening the worksheet; type text that prompts the user to make a selection.

What description do you want to show to other users—this text also appears in the dialog; it explains the Parameter.

What default value do you want to give this Parameter—this is the pre-selected data value for the Parameter. Click the drop down arrow and select a data value from the list, or type the default value directly into the box.

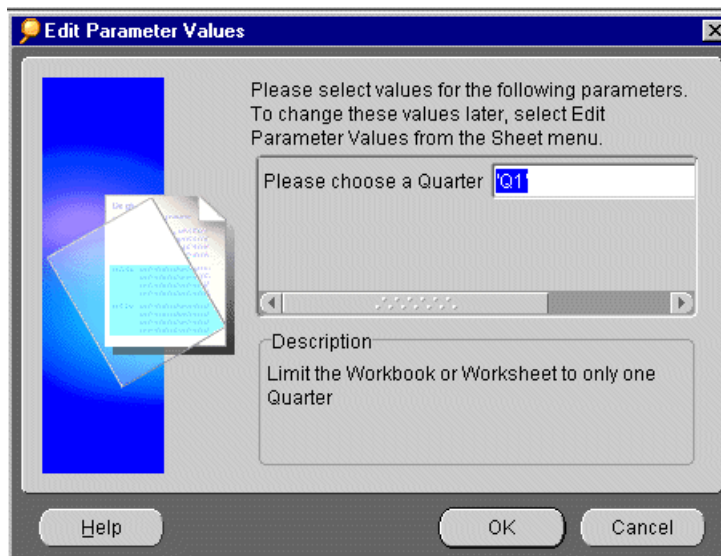
Let other users select multiple values—select this option if you want the person using the worksheet to be able to select multiple data values for the Parameter when opening the worksheet. If this option is not selected, the person can choose only one value for the Parameter.

5. Click **OK**. You return to the **Parameters** tab.
6. Click **OK** in the **Parameters** tab to apply your changes.

To select different Parameter values:

1. From the menu, choose **Sheet | Edit Parameter Values**. The **Edit Parameters** dialog appears.

Tip: You can click the **Refresh** icon to display the **Edit Parameters** dialog, (or choose **Sheet | Refresh Sheet**).



2. Select a new data value, and click **OK**.
You'll see the results corresponding to the data value you have chosen.

Conditions

A Condition is a statement for finding specific data. Turning on a Condition filters out the data that does not meet the Condition, and displays only the data that you want to see.

The following examples illustrate the concept of Conditions.

The year 1998 was your best ever and you want to analyze sales data from 1998 in detail to pinpoint why the business was so successful. To run the analysis, you need to see data only from 1998.

The Condition statement is: **Year=1998**. Data from the other years is not displayed.

The stated business goal of your company is for each store to generate daily profits in excess of \$3000. You want to find out which stores already exceed their profit goal of \$3000.

The Condition statement is: **Profit SUM>3000**. Data from all stores with profits greater than \$3000 is displayed and you can quickly see which stores already meet their goal.

On the other hand, to see the stores that haven't generated \$3000 in daily profits yet, the Condition statement would be **Profit SUM <3000**.

Worksheets can have many Conditions previously defined by the Discoverer Administrator, or by you. If you have the privilege to edit a worksheet, you can pick and choose which Conditions to apply to see the data you want. In addition, if none of the existing Conditions filters the data exactly as you want, you can create your own Condition statements and apply them.

[Click to learn about:](#)

[Using Conditions](#)

[Creating New Conditions](#)

[Applying Conditions to Worksheets](#)

[Grouping Multiple Conditions](#)

[Editing and Deleting Conditions](#)

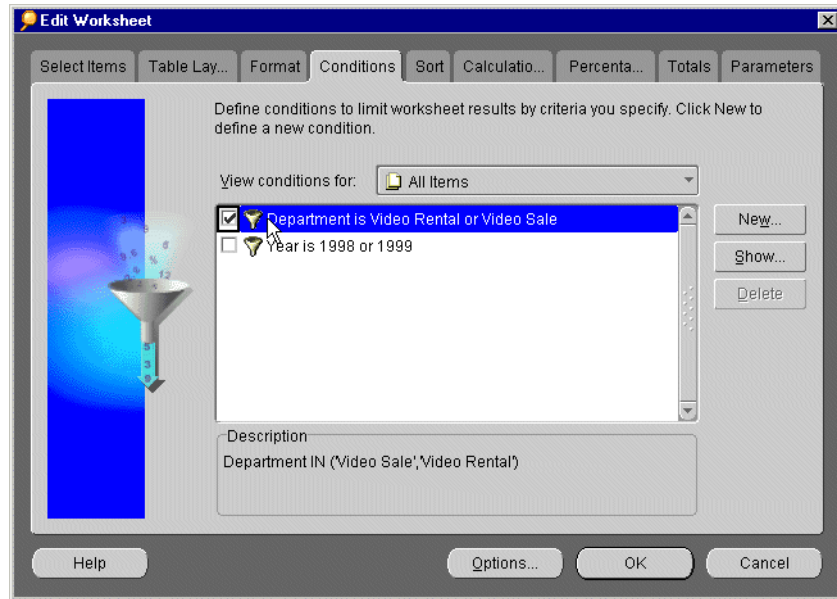
Using Conditions

Conditions previously defined for a worksheet are listed on the Conditions dialog. You can turn these Conditions on and off to find the data you want to see. Turning a Condition on displays only the data that meets the Condition. Turning a Condition off restores the other data to the display.

Turning on a Condition filters out the data you don't want to see. If you want to see all the data again, turn the Condition off.

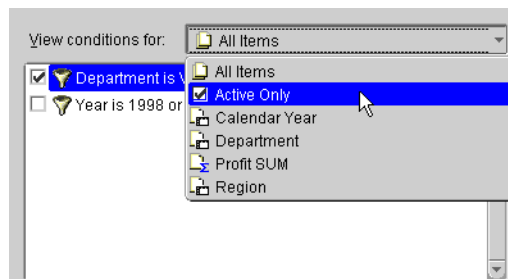
To view available Conditions:

1. Choose **Tools | Conditions** or click the **Condition** icon on the **Toolbar** to see the **Conditions** dialog. The **Conditions** dialog appears.



2. Click the drop down arrow next to the text box labeled **View Conditions for** to determine which Conditions you want to see.

Figure 2-2 Choosing Conditions relating to Items



3. Select one of the following:

<data item>—lists Conditions that apply only to the selected data item.

All Items—lists Conditions defined for all items in the workbook.

Active Only—lists only the Conditions turned on for the current worksheet.

To turn Conditions on and off:

1. Choose **Tools | Conditions** or click the **Condition** tool on the **Toolbar** to see the **Conditions** dialog. The **Conditions** dialog lists the Conditions already defined for your workbook, and shows which are turned on or off.
2. To turn on a Condition, click the box next to it so a checkmark appears. You can turn on more than one Condition at a time. To turn off a Condition, click a checkmarked box to remove the checkmark.
3. Click **OK**. Discoverer finds the data that meets the Condition(s), and displays it.

CAUTION: Do not click the **Delete** button to turn off a Condition. The **Delete** button permanently removes the Condition from your workbook.

If you select two (or more) Conditions that conflict, a warning appears. For example, the two Conditions “Year = 1994” and “Year = 1995 or 1996” conflict because the first Condition removes data for all years except 1994 and the second Condition tries to display 1995 and 1996 at the same time.

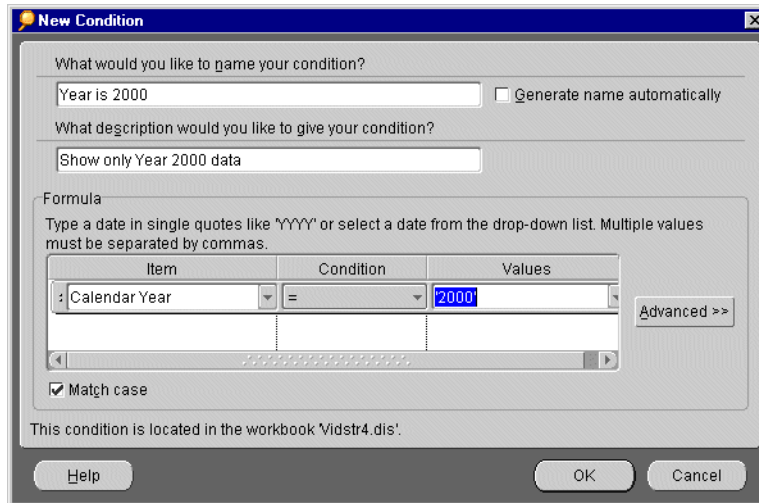
Complex conflicts may not be detected. In that case the worksheet appears with no rows of data.

Creating New Conditions

If none of the existing Conditions filter the data to find the specific information that you want to see, you can create your own Condition statements. This section explains how to create relatively simple Condition statements. The section, *Grouping Multiple Conditions*, explains how to create more complex Condition statements.

To create a new Condition:

1. Choose **Tools | Conditions**, or click the **Conditions** tool on the **Toolbar** to see the **Conditions** dialog.
2. Click the **New** button to see the **New Condition** dialog.



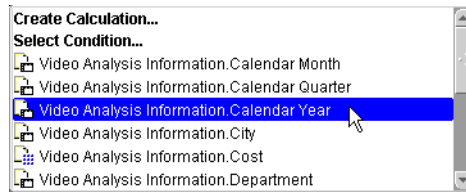
3. Type text for the following:

What would you like to name your Condition—Type a name in the text box. To automatically generate a name for the Condition based on the data item, the Condition, and the values that you select for it, check the box **Generate name automatically**.

What description would you like to give your Condition—For simple, straightforward Conditions, the name and description are usually sufficient to explain how the Condition will filter the data. However, advanced Conditions might need more detailed descriptions for clarity. Descriptions typed here appear in the **Conditions** dialog when the Condition is selected. If you don't enter a description, the Condition formula automatically appears as the description.

4. Create the formula for the Condition statement using the **Formula** section of the dialog. You build or edit a formula by first choosing an **Item** and **Condition** and then choosing or entering the appropriate values in the **Value(s)** text box.
5. Click the drop down button for **Item** and choose the data item for the first part of the Condition formula.

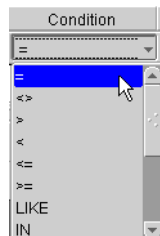
The drop down list shows the data items in the workbook that you can use for the Condition. The list shows all the data items in the workbook, not just those data items currently being displayed on the worksheet. You can use any data item defined for the workbook to create a Condition.



Other options on the drop-down list include **Create Calculation** and **Select Condition**, which use calculations or other Conditions to create the first part of the Condition. If you are editing an existing Condition, the option, **Copy Condition**, appears on the drop-down list. It is for quickly replacing an existing Condition on the **Edit Condition** dialog. A list of defined Condition appears and you can select the one you want. It replaces the currently selected Condition in the **Edit Condition** dialog.

If you select an existing Condition as the item, the boxes for the Condition operator and value are removed because the Condition you select is already complete. You can then use the Condition to create a more advanced Condition.

6. Click the drop down button for **Operator** and choose the Condition operator you want.

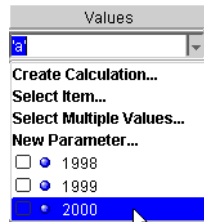


7. To complete the definition of the Condition click in the **Value(s)** box and enter a data value.

The drop-down list of values is a shortcut so you don't have to manually type the data value for an item. However, data values for various items might or might not appear in the list, depending on whether your Discoverer Administrator set up the workbook to show lists of values for different items. If clicking the **Value(s)** drop list button shows a list of data values you can then select the value you want for the item instead of manually typing it.

For example, if the three values for the data item named Region are Central, East, and West, selecting “Region is equal to,” and then clicking the drop list button displays Central, East, and West as the choices.

The following example shows a **Values** drop-down list with choices for cities.



To use the results of a calculation as the value, select **Create Calculation**. A dialog for creating a new calculation appears.

To use another item as the Condition’s value, choose **Select Item**. A list of the items in the worksheet appears and you can select an item from the list.

If the selected item for the Condition has Parameters defined for it, you can choose the option **Select Parameter** from the drop-down list to select an existing Parameter for the item.

If the Condition’s Parameter definition include the option for selecting multiple Parameters, you can choose **Select Multiple Values** from the drop-down list. A list of data values appears and you can select the ones you want.

You can also create new Parameters for the item by selecting **New Parameter** from the drop-down list. The dialog for creating new Parameters appears.

NOTE: If you use Parameters in a Condition, the Parameter appears in the formula with a colon in front of it, such as ":myParameter." If you are using calculations, the calculation appears with an equals sign in front of it so Discoverer knows it is a calculation. The Condition will then substitute the results of the calculation for the item or value where you specified a calculation. Using the equals sign you can also type a calculation directly into the Item box or Value box, such as "=Profit.SUM = Sales.SUM".

8. If you are dealing with text and want the Condition to match the uppercase and lowercase characters in the text, click the box for **Match Case**. For example, if you want the Condition to filter the data to find all “Widgets” but not “widgets,” click the **Match Case** box.
9. Click **OK**. The new Condition appears in the Conditions dialog and is turned on ready to be applied to the data.

10. Click **OK** in the Conditions dialog to see the data that meets the Condition.

Condition Operators

To create a Condition, you use a Condition operator to produce the statement. The following table lists the operators and some examples.

NOTE: Put Text in Single Quotes: 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.

Condition Operator	Meaning	Examples
=	Equals	Region = 'Central' Finds data in only the Central Region.
<>	Not equal	Region <> 'Central' Finds data in all regions <i>except</i> Central.
>	Greater than	ProfitSUM > 10000 Find all data if Profit Sum is greater than 10000 Sales_Date > 01_JAN_99 Finds all sales dates after January 1, 1999.
<	Less than	ProfitSUM < 10000 Find all data if Profit Sum is less than 10000. Sales_Date < 01_JAN_99 Finds all sales dates before January 1, 1999.
<=	Less than or equal to	ProfitSUM <= 10000 Finds all data if Profit SUM is less than or equal to 10000. Product_Name <= 'M' Finds all products with names from A to M.
>=	Greater than or equal to	ProfitSUM >= 10000 Finds all data if Profit SUM is greater than or equal to 10000. Product_Name >= 'M' Finds all products with names from M to Z.
LIKE	Similar to (uses wild-card matching)	Name LIKE 'A_' Finds all two-letter names beginning with the letter A. The underscore () sign matches a single character. Name LIKE '%ING' Finds all names ending with the letters ING. The percent symbol (%) matches multiple characters.
IN	Contains one or more values	City IN ('Boston', 'Los Angeles', 'New York') Finds data from Boston, Los Angeles, New York.

Condition Operator	Meaning	Examples
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') Finds all data except data that contains Boston or Chicago.
BETWEEN	A value lies between two values	Profit BETWEEN 1000 AND 2000 Finds data that contains 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 Finds data that contains profits less than 1000 or greater than 2000.
NOT LIKE	Not similar to	Name NOT LIKE 'A_' Finds all names not beginning with A. Name NOT LIKE '%ING' Finds all names not ending in ING.
!= and ^ = and <>	Not equals	Region! = 'Central' Finds all regions except Central. Note: These three operators have the same meaning because all three are used by different programming languages to mean "not equals." Pick the one you are most comfortable using.

Grouping Multiple Conditions

You can group multiple Condition statements. Conditions consisting of multiple statements are connected using the AND and OR operators. You can also nest statements, so one statement is contained within the definition of another statement.

NOTE: There isn't a NOT operator, but you can create negated Conditions by using complementary operators.

Examples:

Find data from stores with profits greater than \$3000 in 1995.

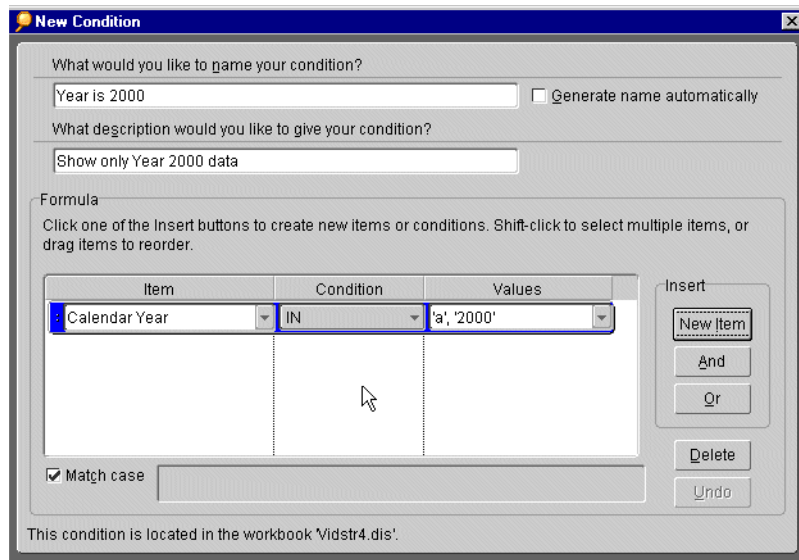
The Condition statement is: **Profit SUM>3000 AND Year=1995**. Data from other years and from stores with less profits is not displayed.

Find the data from all the stores in California, plus all the stores that have profits of \$3000.

The Condition statement is: **State='CA' OR Profit SUM>3000**. The data display shows data from all the stores in California regardless of profits, and all those from any state with profits in excess of \$3000.

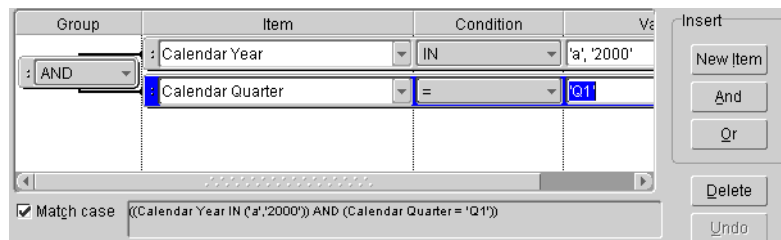
To group multiple Conditions:

1. In the **New Condition** dialog, click the **Advanced** button. The **Advanced Conditions** dialog appears.



Discoverer adds **Insert** buttons for **New Item**, **And** and **Or**. You use these buttons to create the advanced Condition.

2. Create the first line of the Condition. In the example above it is **Calendar Year IN 2000**.
3. Click the **New Item** button to add another line to the Condition statement.



Notice the new **Group** column added at the left side of the dialog. The **Group** column indicates how the statements are grouped by the operator. By default, when you first write multiple statements they are grouped with the logical AND operator. To change the group operator to OR, NOT AND, or NOT OR, click the drop-down menu next to it.

4. Create the second line of the Condition.

Discoverer displays the formula at the bottom of the dialog so you can verify that the statement's logical construction is correct.

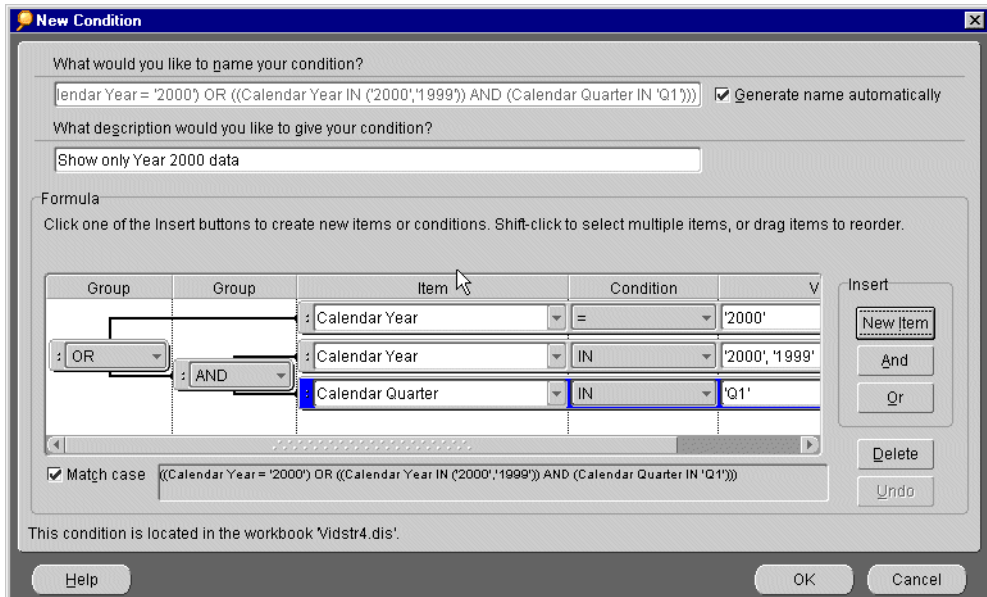
5. Click **OK** to save the multi-statement Condition.

NOTE: You can drag Conditions and items on the dialog. Dragging Condition A onto Condition B replaces Condition B with Condition A. You can also select **Copy Condition** from the Item drop-down list. In that case the values of the copied Condition replace the values of the selected Condition.

The operators can also be “nested” to several levels to group multiple Conditions. For example, the Condition to find data from stores with costs greater than \$1000 in 2000 or from stores with costs greater than \$1000 in the East sales region for any year is: **Cost>1000 AND (Region='East' OR Year=2000)**.

To nest multiple Conditions:

1. Click the column handle next to the group operator.
2. Click the **And** or **Or** button to add another group to the Condition.



The formula at the bottom of the dialog shows the new statement construction.

3. Select the Item, Condition, and Value as you did for the other lines of the Condition.

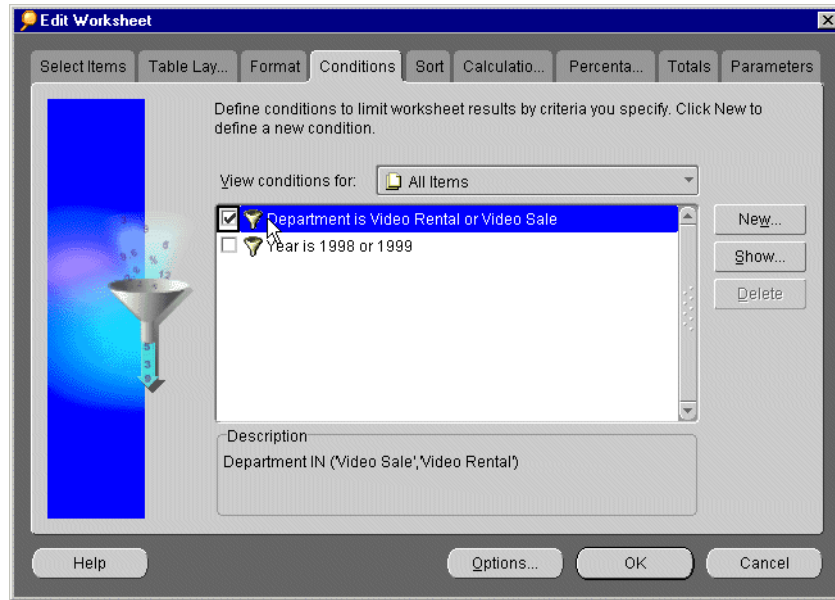
NOTE: Using the **AND** and **OR** operators can be tricky especially when grouping statements. Check the data carefully to see if the Condition produces the desired result.

NOTE: If you delete a Condition, the **Undo** button becomes active, so you can restore it if you need to. **Undo** only works after a deletion.

4. Click **OK** to save the multi-statement Condition.

Applying Conditions to Worksheets

When you finish creating a Condition, Discoverer checkmarks it to indicate it is ready to be applied to the data.



Click **OK** to apply the Condition to the data and see the results.

Editing and Deleting Conditions

If a Condition statement does not find the exact data that you want, you can edit the statement. For example, if the statement finds data for 1998, but your database now includes data from 1999, you can edit the Condition to update it to find the newer data.

Deleting a Condition removes it permanently from the workbook. However, because you can turn Conditions on and off, you may not want to delete a Condition in case you'll need it in the future.

To edit a Condition:

1. Choose **Tools | Conditions**, or click the **Conditions** tool on the **Toolbar**. The **Conditions** dialog appears.
2. Select the Condition in the **Conditions** dialog.
3. Click the **Edit** button. The Edit Condition dialog appears.

NOTE: You cannot edit Conditions created by the Discoverer Administrator. If you select one of these Conditions, the **Edit** button changes to **Show**. You can click the **Show** button to review the Condition and see its formula, but you cannot make changes.

In addition, advanced Conditions containing subqueries created in Discoverer 3.1 cannot be reviewed or edited. A message tells you that the Condition cannot be reviewed or edited. You can still turn these Conditions on and off, however, to analyze your data in the way you want.

4. Make the changes you want to the Condition.
5. Click **OK**. The Condition is now edited.
6. To apply that edited Condition to the data, make sure it is checked on and click **OK**.

To delete a Condition:

1. Choose **Tools | Conditions**, or click the **Conditions** tool on the **Toolbar**. The **Conditions** dialog appears.
2. Select the Condition you want to delete.
3. Click the **Delete** button. Discoverer removes the Condition from the list.

Creating a New Workbook

While working with Discoverer, you may want to create additional workbooks and worksheets of your own. For example, 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 (granted by the Discoverer Administrator), you can create workbooks and worksheets.

NOTE: You use the same process to create workbooks and worksheets. In fact, to create 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.

[Click to learn how](#)

[To create a new workbook or worksheet:](#)

[To add an item to the current worksheet:](#)

[To delete an item from the current worksheet:](#)

[See also:](#)

[Opening an Existing Workbook](#)

[Editing a Worksheet](#)

[Saving a Workbook](#)

[Refreshing Data in a Workbook](#)

[Deleting a Workbook](#)

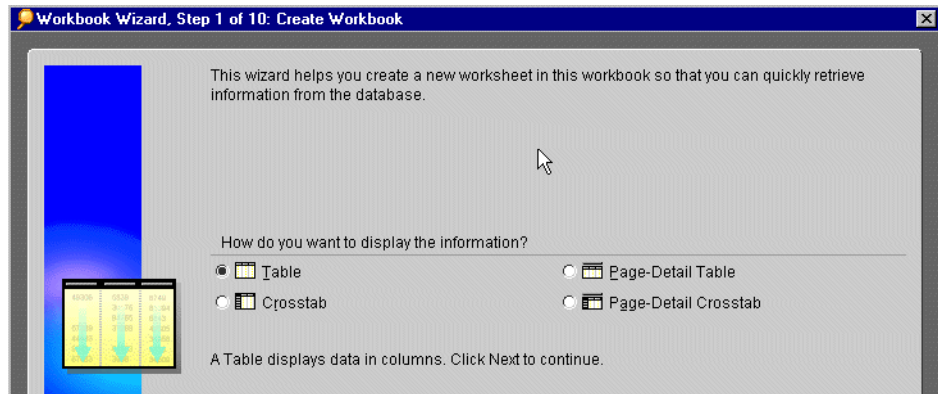
To create a new workbook or worksheet:

1. Choose either of the following:
 - Choose **Sheet | New Sheet** to build a new worksheet.
 - Choose **File | New** to create a new workbook.

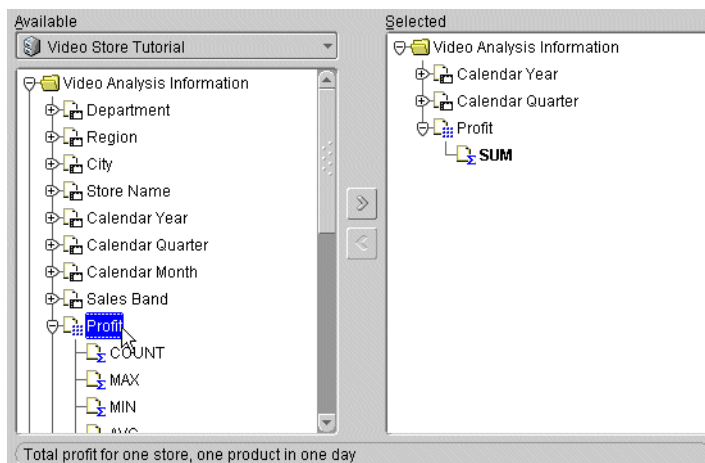
The Worksheet Wizard dialog appears. This dialog is where you select the layout—table or crosstab—that you want to use to display the data on the new worksheet.

NOTE: The sample dialogs in the rest of this section are for creating a new worksheet. The dialogs for creating a new workbook are the same, except the dialog titles are “Create Workbook” instead of “Create Worksheet.”

2. Click the icon for the type of display for the new worksheet. As you select each type, the corresponding description is displayed as well.



3. Click **Next**. This dialog is for selecting the data that you want on the new worksheet.



This dialog lists the data in the business area that you can use to build the new worksheet. The following table describes the icons that you may see on the dialog.

Table 2-1 New Worksheet Icons






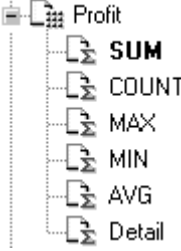


Sample Icon	Description
	<p>Business area—displays a business area created by the Discoverer Administrator; to select another business area for the new worksheet, click the drop-down arrow and choose from the list of business areas. A business area contains one or more folders.</p>
 Video Analysis	<p>Folders—organizes the items that you can select for your worksheets. Clicking the plus (+) and minus (-) symbol next to the folder opens and closes it.</p>
 Region	<p>Axis Item—corresponds to a column on a table or a level on a crosstab axis; axis items remain constant and have relatively few unique 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.</p>
 East	<p>Axis Item Value—one of the values of an axis item.</p>
 Profit	<p>Numeric Item—represents numeric data; The values of numeric items can change as you analyze the data, for example, summing profits will produce different results for cities than for regions. Numeric items behave as Axis items on table and correspond to the data in the body of a crosstab.</p>
	<p>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).</p> <p>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 Discoverer Administrator defines the default aggregation.</p>
 Year is 1995 or 1996	<p>Condition—a filter for finding specific data. Conditions/Calculations defined by the Discoverer Administrator appear in folders, but user-defined Conditions/calculations do not.</p>

Table 2-1 New Worksheet Icons

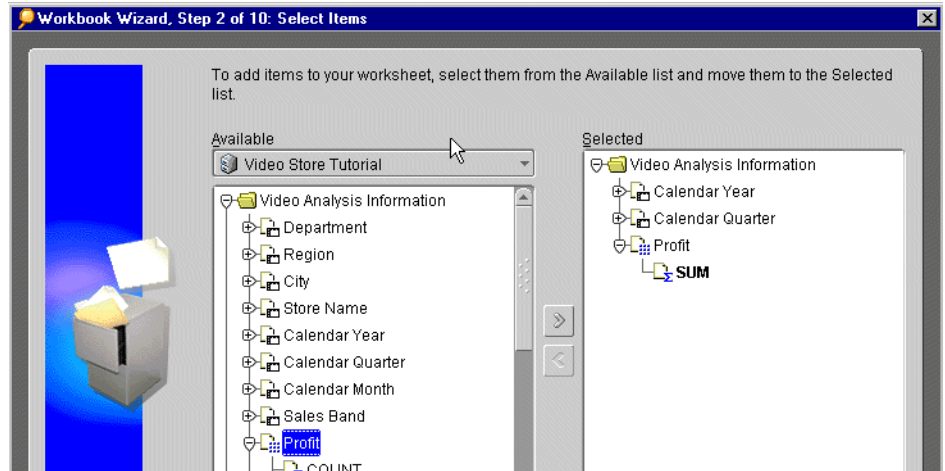
Sample Icon	Description
 Margin percentage	<p>Calculation—a mathematical expression to produce new data from other items. Conditions/Calculations defined by the Discoverer Administrator appear in folders, but user-defined Conditions/calculations do not.</p>

4. Select the business area from the drop-down menu at the top of the **Available** list.
5. 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.

Items may have plus signs next to them as well, indicating you can select values for those items as well. For example, a City item contains the names of the cities in the database. You can select a specific city to add to the worksheet. By doing this, you are implicitly creating and activating the Condition ‘City’ = <name>.

6. From the list of available data items, select the specific data items to add to your worksheet. Shift-click on items to select multiple items. Ctrl-click to select items not adjacent to one another. The Right Arrow button in the middle of the dialog becomes active.
7. Click the **Right Arrow** button to move the available items to the **Selected** list. Those items are then the data items for the new worksheet. You can also drag the selected items from the **Available** list to the **Selected** list. The following example shows several items moved to the **Selected** list



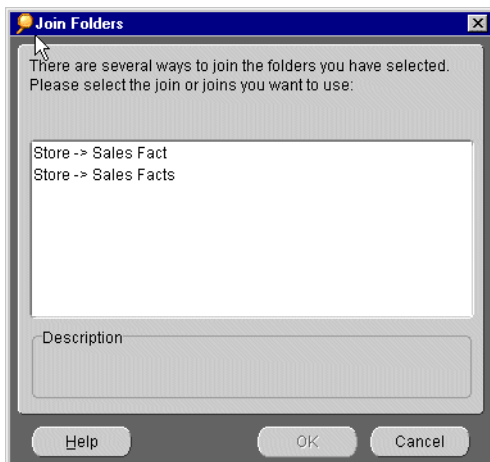
You can select data at various levels in the **Available** list. For example, selecting a folder and moving it to the **Selected** list, moves all the data within the folder to the list. Similarly, moving an item to the **Selected** list moves all values in it to the list and, ultimately, to the worksheet. For example, moving the **City** item to the **Selected** list results in the names of all the cities being on the worksheet.

Moving a numeric item to the **Selected** list automatically includes its default aggregation functions. All values are automatically included as well. Selecting and moving an axis item, however, does not automatically include aggregate functions.

To remove an item from the **Selected** list, click it and drag it back to the **Available** list, or click the **Left Arrow** button.

8. Depending on the items you select from multiple folders, you may see a dialog that asks you to identify the manner in which the folders are joined. This means there are multiple ways of combining the items they contain and you may select which way will be used.

NOTE: Contact your Discoverer Administrator to describe the specific choices you are given. Often, your Discoverer Administrator only intended one of these options to be available, and they can modify a business area to remove the extra option. For more information about join paths, see “About Multiple Join Paths” on page 16.



9. At this point, you can click **Finish** to create a new worksheet. Clicking **Next** shows the next (optional) page for adding other features to the new worksheet.

NOTE: To change selections on the previous pages, click the **Back** button.

Editing a Worksheet

The dialogs for editing a worksheet offer the same selections and features that you use to create a worksheet or workbook.

[Click to learn how](#)

To edit a worksheet:

To add an item to the current worksheet:

To delete an item from the current worksheet:

See also

[Changing a Worksheet's Layout](#)

[Creating a New Workbook](#)

[Saving a Workbook](#)

[Refreshing Data in a Workbook](#)

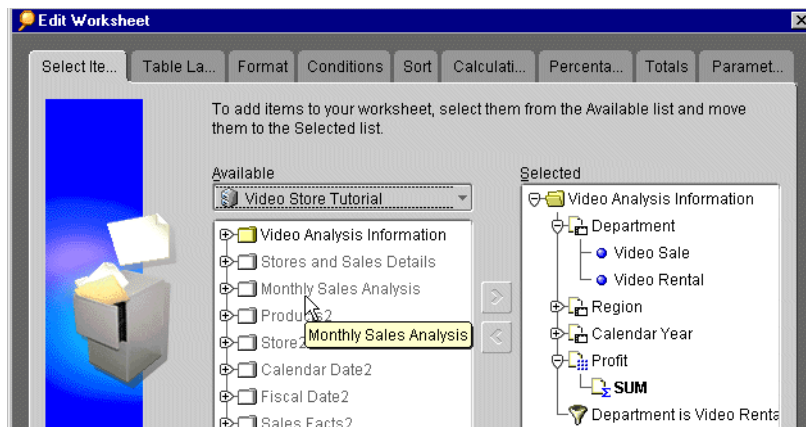
[Deleting a Workbook](#)

To edit a worksheet:

1. Open 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 appears.

The tabs across the top of the dialog are for editing the various features of the worksheet. Clicking on a tab displays the options for the feature. For example, when the **Select Items** tab is selected, the items shown in the **Selected** list are the items currently in use on the worksheet. Items in the **Available** list can be added to the worksheet unless they are grayed out.



The figure above is for editing a tabular worksheet. A similar dialog appears for crosstab worksheets, except **Table Layout** tab becomes **Crosstab Layout** and the dialog does not include the **Sort** tab. To sort crosstab data, choose **Tools | Sort**.

Adding and Deleting Items on a Worksheet

The first tab on the Edit Sheet dialog 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 an item for the cities within the regions.

Adding a new item to a worksheet adds a column to the table or a row or column to a crosstab.

See also:

[Editing a Worksheet](#)

[Changing a Worksheet's Layout](#)

[Saving a Workbook](#)

[Refreshing Data in a Workbook](#)

[Deleting a Workbook](#)

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 **Right Arrow** 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 **Left Arrow** button.

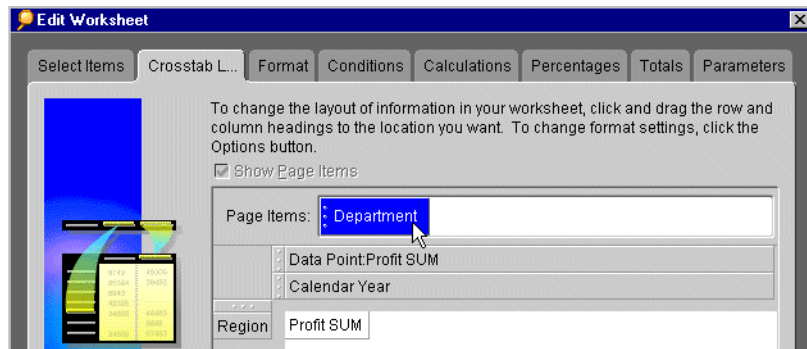
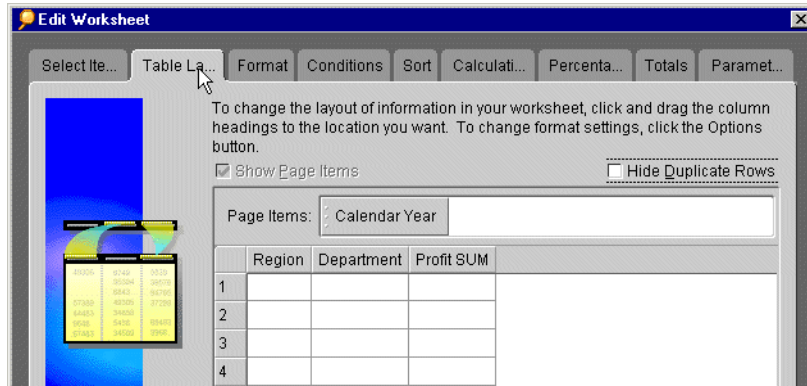
You can also delete items from a worksheet using the **Table Layout** tab or the **Crosstab Layout** tab. Click on the item then press the **Delete** key.

Changing a Worksheet's Layout

You can rearrange and pivot the page items, axis items, and columns on a worksheet by editing the layout.

1. Open the worksheet that you want to edit.
2. Click the **Edit Sheet** icon on the toolbar, or choose **Sheet | Edit Sheet**.
3. Click the **Table Layout** tab or **Crosstab Layout** tab. The layout shows the current arrangement of the items on the worksheet.

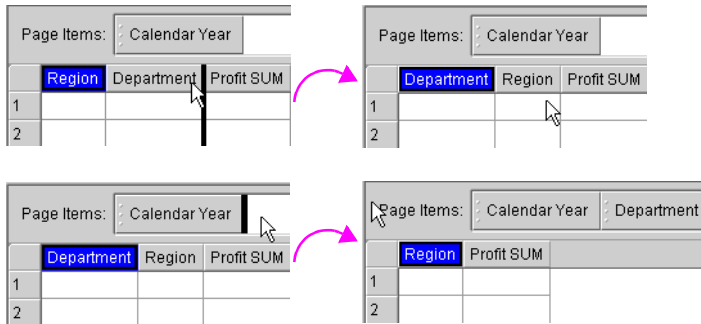
The following examples show the **Table Layout** and the **Crosstab Layout**.



4. Select one of the items on the layout.
5. Drag the item to its new position on the layout. A black line on the top/bottom/side of an adjacent item shows where the items will be located when you release the mouse button.
6. Release the mouse button when the item is in its new position.
7. To delete an item from the layout, select it and click the **Delete** key on the keyboard.

The following examples on the **Table** layout show:

- moving the **Region** column to the right to become the second column on the worksheet
- pivoting the **Department** item from a column to become a **Page Item**.



If the worksheet contains rows with duplicate data you can hide those rows by clicking the option, **Hide Duplicate Rows**.

To remove the **Page Items** box from the top of the worksheet, drag all items from that box to the report body, then uncheck **Show Page Items**.

Formatting Text, Numbers, and Dates

The **Workbook Wizard** provides the **Format Panel** to help you customize the way text, numbers, and dates appear in your worksheets. You can change font size, color, and alignment one column at a time or one row at a time. You can even select multiple items to format simultaneously.

You can format the data in your worksheets, format row and column headings, and change the way an item's name displays in a worksheet. For example, you can increase the font size for a grand total row to make it more prominent. You can change the alignment of row and column headings so that they are centered or right-justified. And you can change an item's heading to something more meaningful to you; for example, you can change the heading "Profit SUM" to "Total Annual Profit".

The formats you create using the **Format Panel** apply to one worksheet at a time. To set default formats for all worksheets, see "Setting Sheet Format Options" on page 5-8 and "Setting Default Format Options" on page 5-10.

[Click to learn how](#)

[To change the format of worksheet data:](#)

[To change the format of row and column headings:](#)

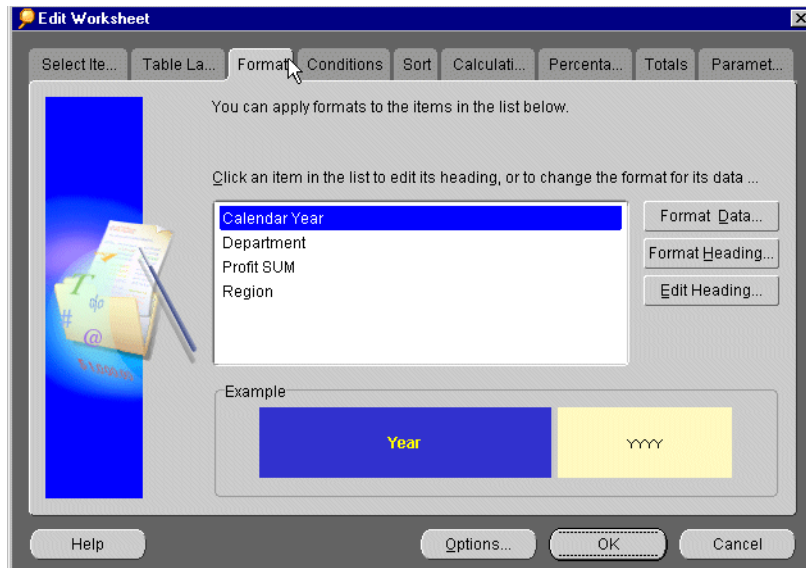
[To change a heading's heading:](#)

[See also:](#)

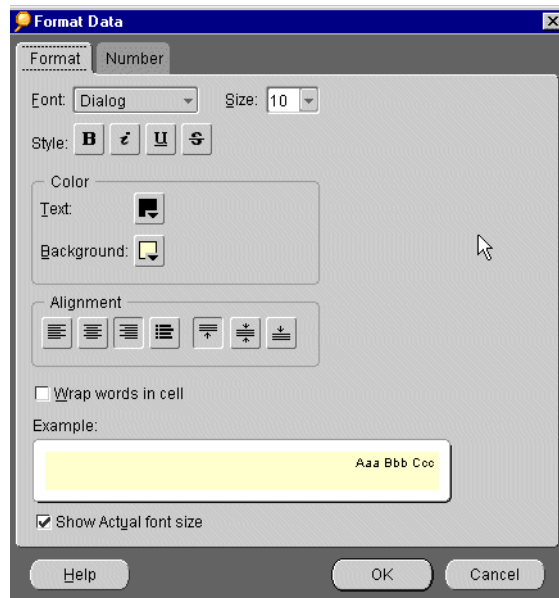
[Changing a Worksheet's Layout](#)

To change the format of worksheet data:

1. With a workbook open, click on the tab for the worksheet that you want to format.
2. From the **Sheet** menu, choose **Format...** The **Format Panel** of the **Workbook Wizard** appears.



3. In the list box on the left, click the items that you want to format. You can format one item at a time or format multiple items. The **Example** box shows you the item's current heading format.
4. Click the **Format Data** button to change the way worksheet data appears in cells, for example, to change the font size, color, and alignment of numbers. The **Format Data** dialog appears.

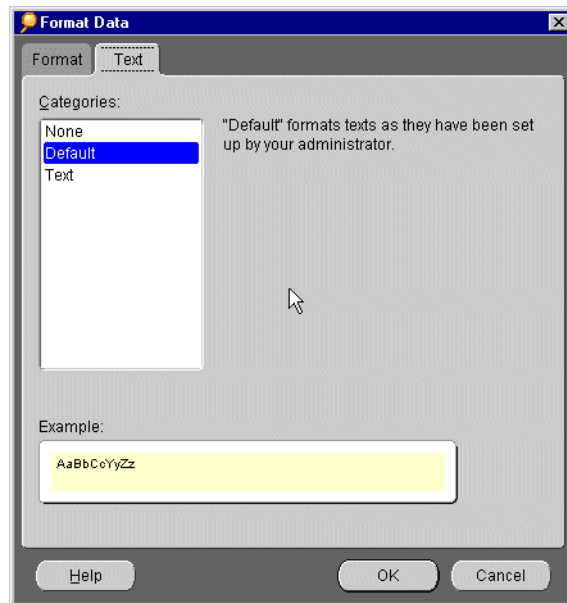


5. In the **Format Data** dialog, do any of the following:
 - Click the **Size** drop-down menu to increase or decrease the font size for data.
 - Click one or more of the **Style** buttons to make your data **bold**, *italic*, underlined, or strike-through.
 - Click the icons next to **Text** and **Background** to choose their colors from a color palette.
 - Click one horizontal alignment button and one vertical alignment button to change the way data is aligned within worksheet cells.
 - Click the **Wrap words in cell** checkbox if you want long words to be visible inside a single cell.
 - Click the **Show Actual font size** checkbox if you want to preview your changes in the **Example** box using the font size as well as the other changes that you chose above.
6. Do one of the following:
 - If the item you are formatting contains numbers (for example, currency or percentages), you will also see a tab labelled **Number** on the **Format Data** dialog. Click

the **Number** tab to add or remove decimal places, to show or hide a currency symbol for your country, or to create a custom number format.

NOTE: The currency symbol displayed is determined by the Country setting. To change the currency symbol, close Discoverer, then click the **Choose a Language** option at the Discoverer Start Page. Then follow the screen instructions for starting Discoverer, and choose a different Country setting.

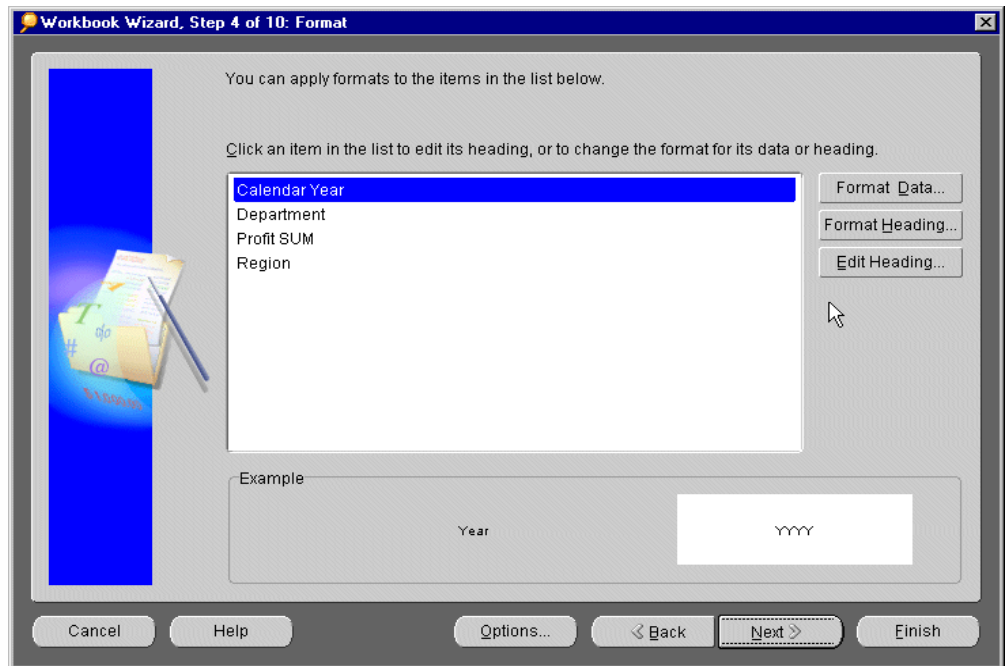
- If the item you are formatting contains dates (for example, Year or Quarter), you will also see a tab labelled **Date** on the **Format Data** dialog. Click the **Date** tab to change how dates appear in your worksheet.
- If the item you are formatting contains text (for example, Region), you will also see a tab labelled **Text** on the **Format Data** dialog. Click the **Text** tab to change the text's capitalization to UPPERCASE, lowercase, or Capitalized.



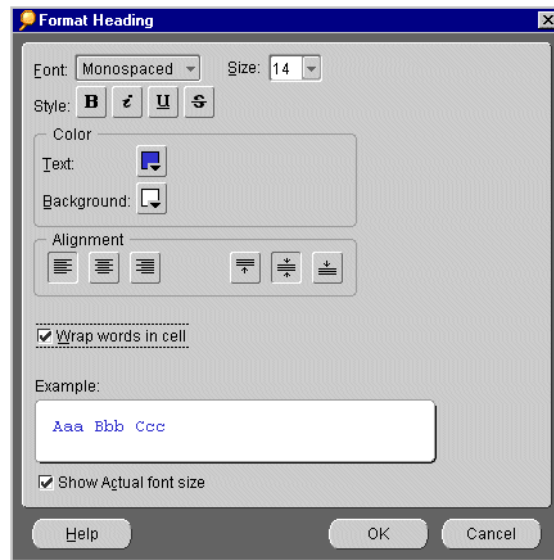
7. Preview your changes in the **Example** box, and then click **OK**. You return to the **Format Panel**, where you can also format row and column headings or change the way an item's name is displayed in a worksheet.

To change the format of row and column headings:

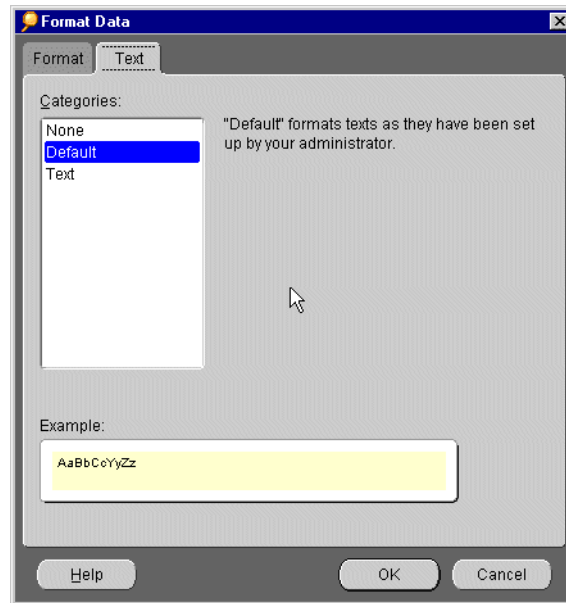
1. With a workbook open, click on the tab for the worksheet that you want to format.
2. From the **Sheet** menu, choose **Format...** The **Format Panel** of the **Workbook Wizard** appears.



3. In the list box on the left, click the item that you want to format. You can format the heading for one item at a time or format multiple headings. The text inside the **Example** box shows you the item's current heading formatting.
4. Click the **Format Heading** button to change the way row and column headings appear on the worksheet. For example, the change the font size, color, and alignment of headings. The **Format Heading** dialog appears.



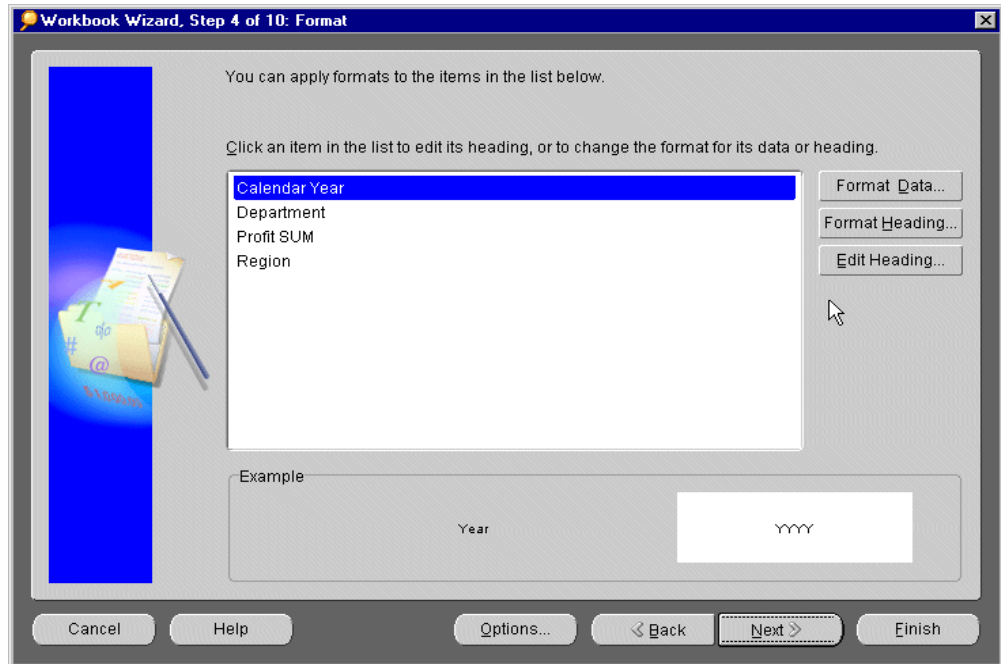
5. In the **Format Heading** dialog, do any of the following:
 - Click the **Size** drop-down menu to increase or decrease the font size for headings.
 - Click one or more of the **Style** buttons to make your headings **bold**, *italic*, underline, or strike-through.
 - Click the icons next to **Text** and **Background** to choose their colors from a color palette.
 - Click one horizontal alignment button and one vertical alignment button to change the way headings are aligned within columns or rows.
 - Click the **Wrap words in cell** checkbox if you want long headings to be visible inside a single cell.
 - Click the **Show Actual font size** checkbox if you want to preview your changes in the **Example** box.
6. On the **Format Heading** dialog, you will also see a tab labelled **Text**. Click the **Text** tab to change the heading's capitalization to UPPERCASE, lowercase, or Capitalized.



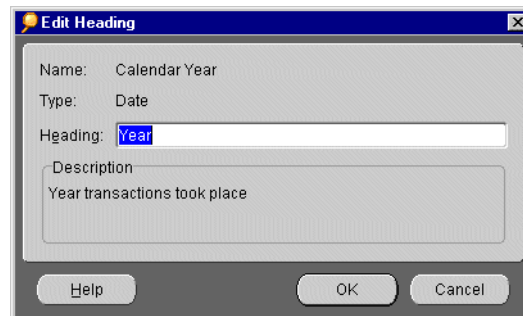
7. Preview your changes in the **Example** box, and then click **OK**. You return to the **Format Panel**, where you can also format worksheet data or change a item's heading.

To change a heading's heading:

1. With a workbook open, click on the tab for the worksheet that you want to format.
2. From the **Sheet** menu, choose **Format...** The **Format Panel** of the **Workbook Wizard** appears.



3. In the list box on the left, click the item that you want to edit.
4. Click the **Edit Heading** button to change the way an item's name appears on the worksheet; for example, to change the heading **Calendar Year** to **Year**. The **Edit Heading** dialog appears.



5. In the **Heading** text box, type a new name for this item.
6. Click **OK**. You return to the **Format Panel**, where you can also format worksheet data and format row and column headings.

Saving a Workbook

Your options for saving a workbook depend on whether you have the privileges to save it to the database.

- If you are the owner of the workbook, and you have privileges to save it to the database, you can save the workbook and any changes to it.
- If you open a shared workbook you can use the **Save As** command to save the workbook under a different workbook name, if you have privileges to save workbooks to the database. However, if you don't have privileges to save workbooks to the database, you can view and edit the workbook but cannot save it. This precludes people without the proper privileges from overwriting someone else's workbook.

See your Discoverer Administrator to find out what type of privileges you have to save workbooks.

[Click to learn how to:](#)

[To save a workbook:](#)

[To rename a worksheet:](#)

[To re-order worksheets in a workbook:](#)

[See also:](#)

[Editing a Worksheet](#)

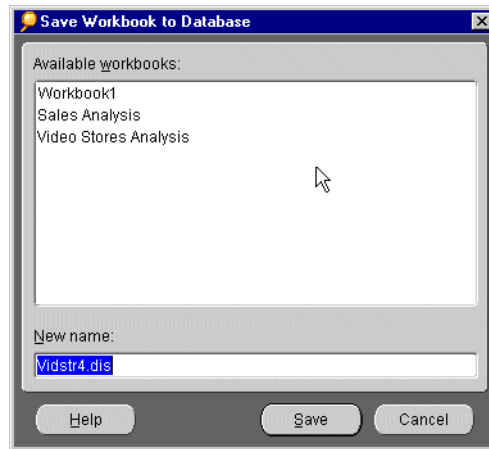
[Creating a New Workbook](#)

[Refreshing Data in a Workbook](#)

[Deleting a Workbook](#)

To save a workbook:

1. Choose one of the following:
 - 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 reminds you to save the changes.
 - To save the workbook under a new workbook name, choose **File | Save As**. The dialog appears for saving a workbook under a new name.

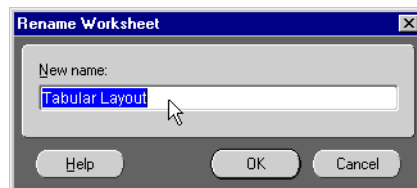


2. Enter a new name in the text box.
3. Click **Save** to save the changes
Click **Cancel** to keep the workbook open without saving it.

To rename a worksheet:

1. Open the workbook that contains the sheet you want to rename.
2. Do one of the following:
 - Double-click the tab at the bottom of the worksheet you want to rename.
 - From the menu, choose **Sheet | Rename Sheet**.

The **Rename Worksheet** dialog appears.



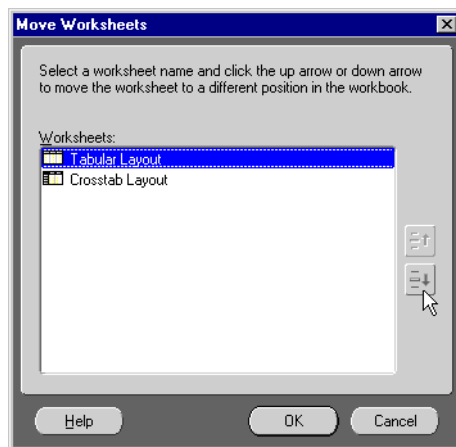
3. In the **New name** text field, type the new name for the worksheet.

4. Click **OK**. The worksheet's new name appears on its tab, which is located on the bottom of the worksheet.

To re-order worksheets in a workbook:

1. Open the workbook that contains the worksheets you want to re-order.
2. From the menu, choose **Sheet | Move Sheet**.

The **Move Worksheets** dialog appears.



3. Click on the name of a worksheet and then click the up arrow or down arrow. The worksheet moves up or down to a different position.
4. Repeat step 3 for every worksheet you want to re-order.
5. When you are finished, click **OK**.

Refreshing Data in a Workbook

Data in a workbook appears as the result of querying the database at a particular time. To refresh the data, you re-query the database. Refreshing often applies to databases receiving data from online transactions or other dynamic sources. Refreshing the data ensures that the information you are viewing is up-to-date.

See also:

[Creating a New Workbook](#)

[Saving a Workbook](#)

[Deleting a Workbook](#)

To refresh the data in a worksheet:

1. Choose **Sheet | Refresh Sheet**. Discoverer displays the worksheet results based on the updated data.

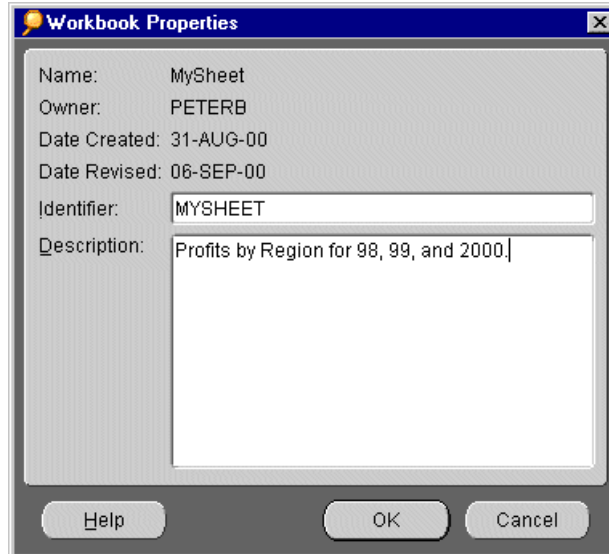
Looking at a Workbook's Properties

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.



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.

3. Click OK to close the Workbook Properties dialog box.

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.

Note: You cannot delete a workbook unless you have the appropriate database privileges. Also, you cannot delete a shared workbook unless you created it.

See also:

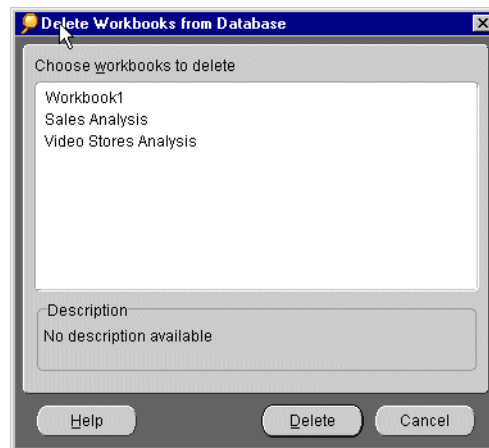
[Creating a New Workbook](#)

[Saving a Workbook](#)

[Refreshing Data in a Workbook](#)

To delete a workbook from the database:

1. Choose **File | Manage Workbooks | Delete**. The **Delete Workbook from Database** dialog appears and lists the workbooks currently in the database that you own.



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

Analyzing Data

Discoverer provides a series of data analysis techniques that you can apply to your worksheets.

- **Sorting**—arranges data into meaningful, useful sequences so that you can easily analyze the information and prepare reports. For example, to prepare a report showing sales figures by store name, you would first sort the data by store name. You can then summarize the sales figures for each store. [Click to learn more about Sorting Data.](#)
- **Pivoting rows and columns**—reorganizes data to gain different perspectives on it. When pivoting data, you move the data from one axis to another to arrange it for efficient analysis. That is, you can move rows to become columns, or columns to become rows. For example, you might want to view annual sales data side-by-side on a worksheet for easy comparison. You might then want to compare the data on a store-by-store basis for the same periods. In most cases, just by pivoting the data you can quickly and easily switch between different views of the data. [Click to learn more about Pivoting Data.](#)
- **Drilling into and out of levels of detail**—you use drilling to either consolidate data to see it at an aggregate level, or to see finer levels of detail. You drill out to get the big picture; you drill in to see the details. [Click to learn more about Drilling Into and Out of the Data.](#)
- **Adding calculations to data**—calculations produce additional data for worksheets. 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 data to find trends and answers, you can use calculations to rigorously analyze the data using mathematical techniques. [Click to learn more about Adding Calculations to Worksheets.](#)
- **Totaling Data**—numeric data on worksheets is presented in rows and columns. You can sum their data to produce totals and sub-totals. [Click to learn more about Totaling Numeric Data.](#)

-
- **Finding Percentages**—finding percentages is a typical data analysis task. Percentages are added in a new column on a table. [Click to learn more about Calculating Percentages.](#)
 - **Graphing your data**—create a variety of graphs based upon your worksheet data. Choose from standard graph types, such as bar or pie, and customize graph elements such as the legend and Marker colors. [Click to learn more about Graphing Your Data.](#)

Sorting Data

Sorting arranges data into either alphabetical or numerical order. For example, a list of parts might be sorted by part number, and a list of customers might be sorted by last name. You normally sort alphabetic information (store names, customer names, and so on) into alphabetical order; you sort numeric information (sales figures, quantity of units sold, and so forth) into numerical order. In either case, you can sort the data from Low to High—which is A to Z or 1 to 10, or High to Low—Z to A or 10 to 1.

NOTE: Although examples in this section show sorting from A to Z, Discoverer sorts data according to the alphabetical sequence most appropriate for the language you selected to use with Discoverer. Please see your Discoverer Administrator about setting up the appropriate sort for your language.

Sorting is also helpful for analyzing data. For example, sorting sales data from most profitable sales to least profitable sales shows the your company's best selling products or the most effective salespeople. In addition to simple sorting, you can also sort data within data. For example, companies often use targeted mailing campaigns based on customer addresses in particular zip codes. You could sort the data by zip code, and then by address within the zip code.

[Click to learn about:](#)

[Simple Table Sorting](#)

[Group Sorting](#)

[About the Sort Order](#)

[Sorting Data on Crosstabs](#)

See also:

[Pivoting Data](#)

[Drilling Into and Out of the Data](#)

[Duplicating Tables and Crosstabs](#)

[Adding Calculations to Worksheets](#)

[Totaling Numeric Data](#)

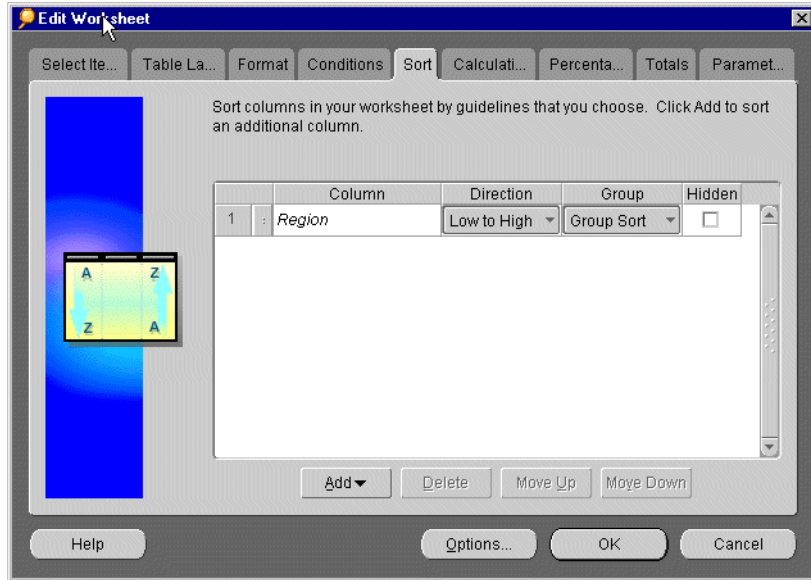
[Calculating Percentages](#)

[Choosing Font Options](#)

Simple Table Sorting

You use the **Sort** dialog to select the data to sort and the sort order.

In the following example, the primary sorted data is Region, which is sorted alphabetically so the three regions appear on the table as Central, East, and West. Region is sorted Lo to Hi, which for text data is alphabetical from A to Z.



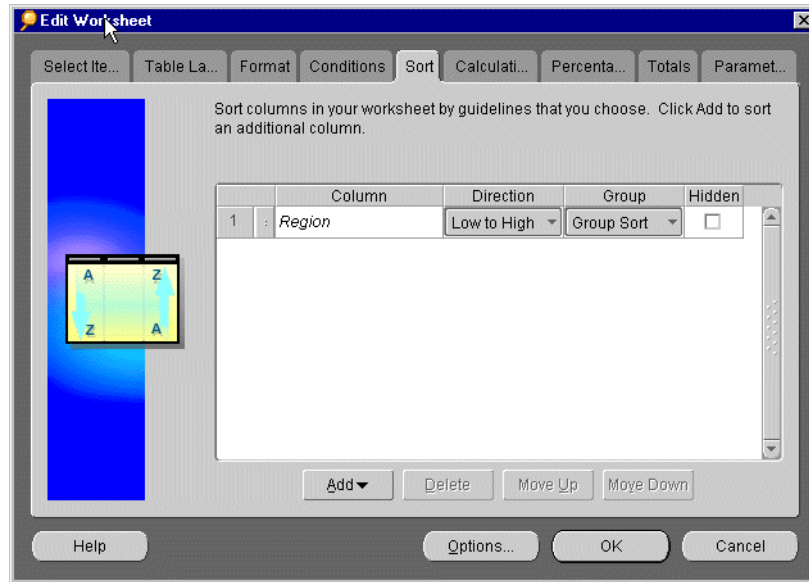
>	Region	Department	Profit SUM
1	Central	Video Rental	\$25,157
2		Video Sale	\$69,493
3			Total for Central: \$94,651
4	East	Video Rental	\$40,402
5		Video Sale	\$109,637
6			Total for East: \$150,039
7	West	Video Rental	\$23,521
8		Video Sale	\$52,092
9			Total for West: \$75,613
10			Total for All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



To sort a single column of data on a table:

1. Open the table with the data you want to sort.
2. From the menu, choose **Tools | Sort** or click the sort icon on the tool bar.

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



3. Click the **Add** button and choose the data item from the drop-down list that you want to use for sorting the data. The item is added to the Column.
4. Click the **Directions** drop-down list and select 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).
5. Click the **Group** drop-down list and select an option for group sorting. See the section "Group Sorting" for details.
6. Click the **Hidden** box to hide the data item being used for sorting. For example, you could designate a sort order by year, but not show the year column.
7. Click **OK**. The data is sorted on the table.

Group Sorting

Applying group sorting displays each data value at the top row of a group. In the following figure the table on the left is group sorted by Region so the Region name only appears at the first city in the region. The table on the right is also sorted by Region, but is not group sorted. In this case the Region name appears next to each city name.

Sorting Data

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

	> Region	Department	Profit SUM
1	Central	Video Rental	\$25,157
2	Central	Video Sale	\$69,493
3	East	Video Rental	\$40,402
4	East	Video Sale	\$109,637
5	West	Video Rental	\$23,521
6	West	Video Sale	\$52,092
7			Total for All Values: \$320,301

One key reason to sort data by groups is to find subtotals for groups of numerical data. See Section , “Creating a New Total” 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 the section, Creating a New Percentage, for more information.

NOTE: You can sort data by groups on table worksheets, but not on crosstab worksheets.

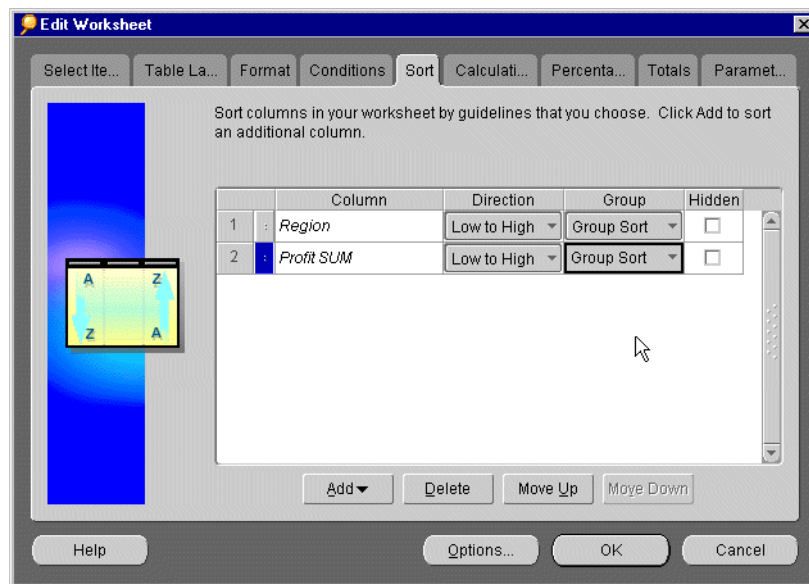
You can also sort data within the groups. The following sample shows data is first sorted by Region, and then within each Region group by Profit Sum from low to high. You can easily see the relative profit standings of each city.

	> Region	Department	Profit SUM	Percent Profit SUM
1	Central	Video Rental	\$25,157	8%
2		Video Sale	\$69,493	22%
3	Total for Central		\$94,651	
4	East	Video Rental	\$40,402	13%
5		Video Sale	\$109,637	34%
6	Total for East		\$150,038	
7	West	Video Rental	\$23,521	7%
8		Video Sale	\$52,092	16%
9	Total for West		\$75,613	
10	Total for All Values		\$320,301	

To sort data by groups:

1. Open the table with the data you want to sort.

2. From the menu, choose **Tools | Sort** or click the sort icon on the tool bar.
The **Sort Table** dialog box appears. It shows the sorting options currently selected for the table. If you do not want to sort by that data item, click its column handle and click **Delete**.
3. Click the **Add** button and choose the data item from the drop-down list that you want to use for sorting the data. The item is added to the Column.
4. To add a data item to be sorted within the Group, click the **Add** button again and add another data item. In the following example, the Region is the group, and the Profit SUM is the data item to be sorted with each Region.



Columns with Group Sort selected always precede those with no group sorting (Group="None") to assure that the sorting is done correctly on the table. If you move a column without group sorting above a column with group sorting, the column you're moving is automatically set to group sort. Similarly, if you move a column with group sorting below a column without group sorting, the column on top is automatically set to group sort.

5. Select the **Direction** options for each column. The sort direction does not have to be the same for each column. For example, sorting Region from **Lo-Hi** arranges the regions

alphabetically, but sorting Profit SUM from **Hi-Lo** arranges them with the most profitable at the top (the highest Profit SUM) and the least profitable at the bottom.

6. From the drop-down list in the **Group** column select a group sorting option.
 - **None**—data in the column is not grouped and is all sorted as a unit. Usually the last data item in a group sorting has the None option selected.
 - **Group Sort**—data is sorted within each group. The group name appears once at the beginning of the grouped data.
 - **Page Break**—data is sorted within each group. The group name appears once at the beginning of each new page.
7. Click **OK**. The data is sorted on the table.

About the Sort Order

The order of the columns on the **Sort** dialog *is* important because it affects how you can compare the data quickly based on the sorting. 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 order that you want on the dialog box. 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.

In the example below, the table on the left is sorted in Profit SUM, then Region. This enables you to see the Profit SUM figures in the order lowest first, highest last. In the table on the right, the sort order is Region, then Profit SUM. This enables you to compare Departments in the same Region.

	> Region	Department	Profit SUM
1	West	Video Rental	\$23,521
2	Central	Video Rental	\$25,157
3	East	Video Rental	\$40,402
4	West	Video Sale	\$52,092
5	Central	Video Sale	\$69,493
6	East	Video Sale	\$109,637
7	Total for All Values: \$320,301		

	> Region	Department	Profit SUM
1	Central	Video Rental	\$25,157
2	Central	Video Sale	\$69,493
3	East	Video Rental	\$40,402
4	East	Video Sale	\$109,637
5	West	Video Rental	\$23,521
6	West	Video Sale	\$52,092
7	Total for All Values: \$320,301		

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 somewhat different from 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 **Sort Crosstab** dialog automatically sorts the data in that manner and maintains the data relationships.

NOTE: Data on a crosstab layout is already sorted by default. Text items are automatically sorted alphabetically from A-Z and numbers are sorted from lowest to highest, but you can reverse the sort order.

The following example illustrates a crosstab sorted by City (A-Z order) within Region (A-Z order).

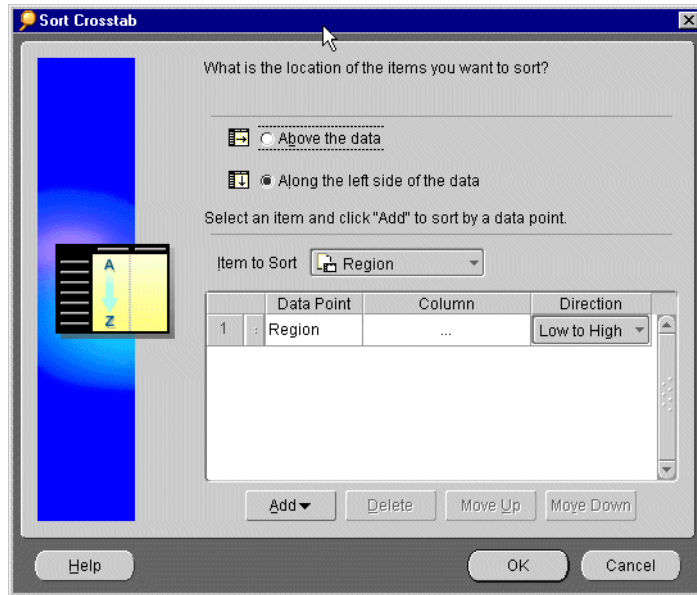
		Profit SUM			
		> Year	> 1998	> 1999	> 2000
> Region	> City				
> Central			\$67,084	\$97,921	\$69,493
	> Chicago		\$5,354	\$10,260	\$5,096
	> Cincinnati		\$18,742	\$28,406	\$22,325
	> Dallas		\$4,774	\$4,319	\$4,049
	> Louisville		\$17,103	\$25,463	\$15,997
	> Minneapolis		\$6,030	\$6,842	\$5,141
	> Nashville		\$3,571	\$5,379	\$4,616
	> St. Louis		\$11,511	\$17,273	\$12,270

Sorting Crosstabs Data on the Sort Crosstab Dialog

The **Sort Crosstab** dialog offers a full range of options for sorting **Crosstab** worksheets.

To sort data on a crosstab:

1. Open the crosstab with the data you want to sort.
2. From the menu, choose **Tools | Sort**. The **Sort Crosstab** dialog appears.



3. Select the location on the crosstab of the items you want to use to sort the data.

Above the data—shows the data items on the top axis.

Along left side of data—shows the data items on the left axis.

4. Click the drop-down list of **Item to Sort** and select the data item. The list includes the items for either the top axis or side axis depending on the selected sort location (above the data or along the left side).
5. Click the **Column/Row** drop-down list and select the specific column or row in the crosstab to use for sorting.

The **Column** drop-down list identifies the column that contains the data for sorting when sorting is based on data from the left side of the crosstab. The **Row** drop-down list identifies the row that contains the data for sorting when sorting is based on data from the top of the crosstab.

6. Click the **Direction** drop-down list and select the sort direction.
7. If you want to change the sort order, select one of the data items and click **Move Up** or **Move Down**.

8. Click **OK**. The data is sorted on the crosstab.
9. Repeat the process to add other sorting to the data.

For example, after Region are sorted in the example shown above, you could repeat the process and sort by Cities. Being able to successively sort lets you create a crosstab that orders the data in precisely the way you want.

NOTE: 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.

Adding a Data Point Adding a data point to a crosstab sorting enables you to sort the data in some other arrangement. Added data points must always be the first item for sorting. 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 the City item by the Profit data point because each City has a Profit amount associated with it. However, it does not make sense to sort Profit by City because each profit value has only one city associated with it. It would be like trying to sort the profit amounts by “New York” or “Phoenix,” 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.

Pivoting Data

Pivoting organizes your data by moving items from the main body of a table worksheet to the page axis. On a crosstab worksheet you have even more control over the elements you can pivot. For example, you can move data items from the main body of the crosstab worksheet to the page axis, side axis or top axis.

[Click to learn how](#)

[To pivot an item on a table:](#)

[See also:](#)

[Sorting Data](#)

[Drilling Into and Out of the Data](#)

[Duplicating Tables and Crosstabs](#)

[Adding Calculations to Worksheets](#)

[Totaling Numeric Data](#)

[Calculating Percentages](#)

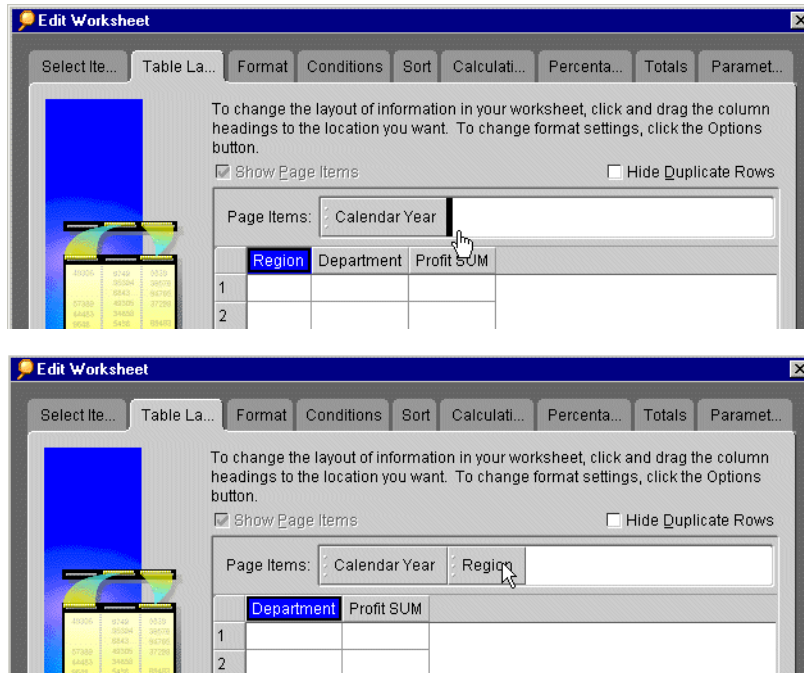
To pivot an item on a table:

1. Open the table with the data you want to sort.
2. From the menu, choose **Sheet | Table Layout**, or click the **Layout** icon on the toolbar. The **Edit Sheet** dialog appears with the **Table Layout** tab selected.

The layout shows the items on the table and their current positions on the table.

3. Select the column to pivot. You can pivot from the page axis to the table or vice versa.
4. Drag the column to its new location, represented by a black bar, and release the mouse button.

The following example shows how to pivot the Region column to the Page Axis.



The Region column moves to the Page Axis.

5. Click **OK**.

The Region column moves to the Page Axis on the Worksheet.

The following example shows what the worksheet looks like before and after pivoting the Region item to the page axis.

Pivoting Data

Page Items: Year: 2000

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

Page Items: Year: 2000 Region: Central

	Department	Profit SUM
1	Video Rental	\$25,157
2	Video Sale	\$69,493
3		Total for All Values: \$94,651
4		Total for All Values: \$94,651

As you can see, putting the Region on the Page axis means that only one Region at a time appears on each page of the worksheet. To see the data from other Regions, select a new Region from the Region drop-down list, as shown in the following figure.

Page Items: Year: 2000 Region: Central

	Department	Profit SUM
1	Video Rental	\$25,157
2	Video Sale	\$69,493
3		Total for All Values: \$94,651
4		Total for All Values: \$94,651

Pivoting Data on a Crosstab

Because the data relationships on a crosstab depend on the intersection of the axis items, 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 for Region, pivoting the Year data item to the side axis add another level of data to that axis.

Use the same drag-and-drop process to move a data item from one axis to another on a crosstab, just as you do to move the columns on a table as shown above.

To pivot an item on a crosstab:

1. Open the crosstab with the data you want to sort.

- From the menu, choose **Sheet | Crosstab Layout**. The **Edit Sheet** dialog appears with the **Crosstab Layout** tab selected.

The example below shows a Crosstab Worksheet and its Crosstab Layout arrangement.

The screenshot shows a Crosstab Worksheet on the left and the Crosstab Layout dialog box on the right.

Crosstab Worksheet:

		Profit SUM			
		> Year	> 1998	> 1999	> 2000
> Region	> City				
> 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

Crosstab Layout Dialog Box:

Select Items | Crosstab L... | Format | Conditions | Calculations

To change the layout of information in your worksheet, drag the column headings to the location you want. To show or hide page items, click the Show Page Items button.

Show Page Items

Page Items: Department

Data Point: Profit SUM

Calendar Year

Region

City

- Select the item to pivot. You can pivot among the page axis, top axis, and side axis.
- Drag the item to its new location, represented by a black bar, and release the mouse button.
- Click **OK**.

Pivoting Data

In the example below, the Year Item has been pivoted to the left-hand axis, and the Region Item has been pivoted to the top axis. You can then make more direct comparisons between Regions as the Regions appear side by side.

The screenshot displays a pivoted crosstab in Oracle Discoverer. The main table has a pivot structure where 'Region' is on the top axis and 'Year' is on the left axis. The data points are 'Profit SUM' for each combination of Year and Region. The 'Page Items' section at the top shows 'Department' set to 'Video Sale'. A configuration dialog box is overlaid on the right, showing the 'Crosstab Layout' tab. It includes a 'Select Items' list with a preview of the data, and a 'Page Items' list with 'Department', 'Region', and 'Data Point: Profit SUM'. The 'Calendar Year' and 'City' sections are also visible.

		Region > Central	Region > East
		Profit SUM	Profit SUM
Year > 1998	City		
	Atlanta	NULL	\$6,220
	Boston	NULL	
	Chicago	\$5,354	
	Cincinnati	\$18,742	
	Dallas	\$4,774	

Select Items: Crosstab L... Format Conditions Calculations

To change the layout of information in your worksheet, you can move the column headings to the location you want. Use the Options button.

Show Page Items

Page Items: Department

Region

Data Point: Profit SUM

Calendar Year: Profit SUM

City

As you can see, pivoting items on a crosstab provides you a powerful means to analyze the data.

Drilling Into and Out of the Data

Drilling helps you easily locate related information in a worksheet. For example, suppose you're analyzing data showing activity at a quarterly (3 months) level. To see the data at a higher level, such as yearly, you can drill out of that information. Similarly, if you want to analyze the data at a monthly level, you can drill into that level.

Drilling **out of** data consolidates the data for a broader overview.

Drilling **into** data shows more details about the data.

So, drill into data to analyze it at a finer level of detail, and drill out to get the larger picture.

Discoverer provides **drill icons** to quickly and easily drill up or down in a table or crosstab. You can use drill icons to drill through data in several ways.

Any data item that permits drilling has a **drill icon** on the worksheet. You can use the drill icon to drill up or down through the data structure. The drill icons are the small arrowheads next to the column headings.



[Click to learn how](#)

[To drill into or out of data from the table or crosstab:](#)

[To collapse drilled data:](#)

[See also:](#)

[Pivoting Data](#)

[Sorting Data](#)

[Duplicating Tables and Crosstabs](#)

[Adding Calculations to Worksheets](#)

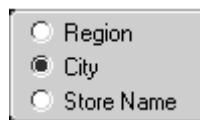
[Totaling Numeric Data](#)

[Calculating Percentages](#)

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.

A drop-down menu appears for the item. For example, if you click the drill icon for City, the drop-down menu shows that you can drill down to the **Store Names** within the city or up to the Region in which the city is located.



2. From the drop-down menu, choose the level of data to which you want to drill up or down.
 - To drill down, select one of the levels below the current level. In the example you would select **Store Name**.
 - To drill back up, select one of the levels above the current level. In the example you would select Region.

If you're drilling down, Discoverer finds the more detailed data specified by the drill and displays it on the worksheet.

If you're drilling up, Discoverer consolidates the data into a more concise worksheet.

Collapsing Drilled Items

If you select a data item to which you have already drilled down, you can **collapse** the levels back to their previous state.

To collapse drilled data:

1. Click the **drill icon** of the data item.
2. Select a value above the current value from the drop-down menu.

Note: Data on a worksheet is often organized in the hierarchical sequence. Typically, you would drill, for example, from Region to City and then from City to **Store Name**. However, in some instances, you might want to drill to data out of that sequence. That is, you might want drill into the data from Region directly to Store Name while skipping the drill to City. This can also be thought of as *skipping* a hierarchical level. To drill to another level out of sequence, simply select the level you want from the drop-down menu.

Duplicating Tables and Crosstabs

Duplicating tables and crosstabs provides a quick, easy way to present still more perspectives on the data. You might, for example, want to duplicate an existing table so that you can use the analytical properties offered by pivoting on a crosstab layout or vice versa.

See also:

[Pivoting Data](#)

[Drilling Into and Out of the Data](#)

[Sorting Data](#)

[Adding Calculations to Worksheets](#)

[Totaling Numeric Data](#)

[Calculating Percentages](#)

To duplicate a crosstab as a table, or vice versa:

1. Open the worksheet that you want to duplicate.
2. From the menu choose **Sheet | Duplicate a Table** or **Sheet | Duplicate as Crosstab**. The dialog box for duplicating the table or crosstab appears.

The dialog box appears with the **Table Layout** tab or **Crosstab Layout** tab selected depending on the duplication you're doing.

3. Indicate which items you want to display in the new table or crosstab:
Show Page Items—show/hide the page items box on the table or crosstab. If page items already exist for the worksheet, Discoverer disables this option and shows the page items portion of the worksheet.
4. Arrange the columns and page items so the duplicated table or crosstab appears as you want it.
5. Click **OK**.

Adding Calculations to Worksheets

Calculations can play an important part when analyzing data. Discoverer has a full range of common mathematical functions and operators to calculate results on your worksheets. Discoverer displays the results of calculations as new columns on a worksheet, or the calculations can be part of other calculations.

[Click to learn more about
Creating and Editing Calculations](#)

See also:

[Pivoting Data](#)

[Drilling Into and Out of the Data](#)

[Duplicating Tables and Crosstabs](#)

[Sorting Data](#)

[Totaling Numeric Data](#)

[Calculating Percentages](#)

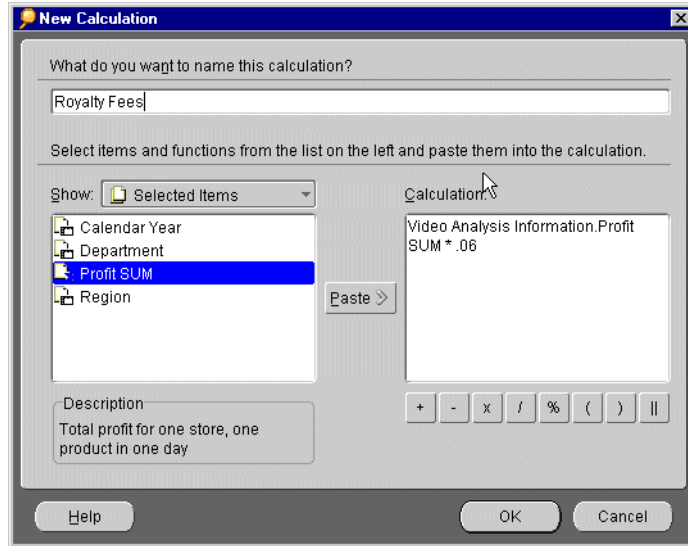
[Displaying Existing Percentages](#)

[Calculation Examples](#)

Here is an example of a simple calculation.

Example: Calculate a royalty of 6% on the sum of the profits.

This example uses the Profit SUM data item and multiplies it by .06 to produce the royalty rate. The answer appears in a new column with a name you type on the **New Calculation** dialog. In this example it is **Royalty Fees**.



The following figure shows the results of applying the calculation.

	> Region	Department	Profit SUM	Royalty Fees
1	Central	Video Rental	\$25,157	\$1,509
2		Video Sale	\$69,493	\$4,170
3	Total for Central		\$94,651	\$5,679
4	East	Video Rental	\$40,402	\$2,424
5		Video Sale	\$109,637	\$6,578
6	Total for East		\$150,038	\$9,002
7	West	Video Rental	\$23,521	\$1,411
8		Video Sale	\$52,092	\$3,126
9	Total for West		\$75,613	\$4,537
10	Total for All Values		\$320,301	\$19,218

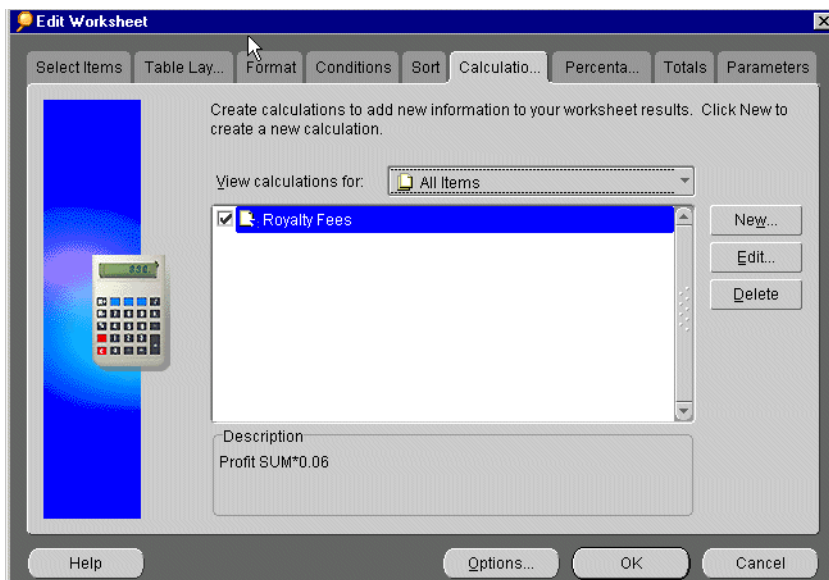
Not all calculations need to use Items or Functions as part of the calculation formula. You can type a formula directly into the **Calculation** box.

Creating and Editing Calculations

You use the **Calculations** dialog to create calculations.

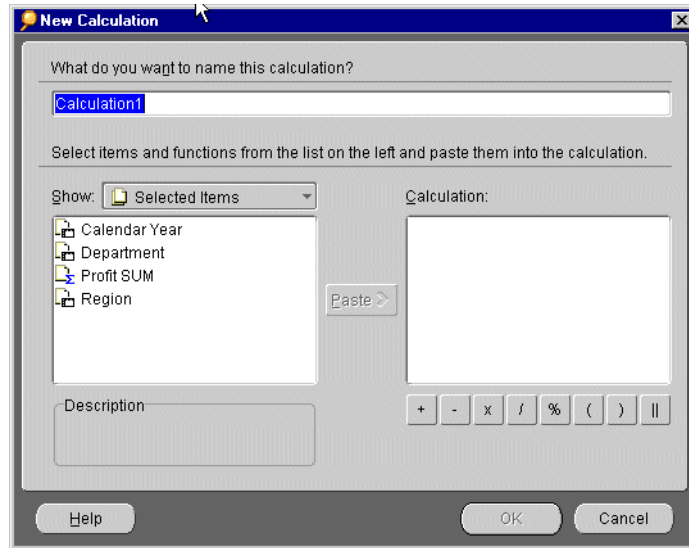
To create or edit a calculation:

1. Open the worksheet on which you want to apply the calculation.
2. Choose **Tools | Calculations**. The Edit Worksheet dialog appears, open to the **Calculations** tab.



This dialog shows calculations already created for the worksheet. Checkmarked calculations are active and apply to the worksheet.

3. Click **New** or **Edit**. The **New** or **Edit Calculation** dialog appears.



4. Type a name for the calculation in the box at the top of the dialog. This name appears on the worksheet as the column header of the calculation results column.
5. Click the **Show** drop-down list to see the different expressions.

Functions—Lists a wide range of mathematical functions that you can apply to the formula.

Selected Items—Lists the items in 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.

Available Items—Lists all the items available for the worksheet even if the items are not currently used on the worksheet.

Calculations—Lists the calculations defined for the worksheet in case you want to use an existing calculation as part of your new calculation.

Parameters—Lists the parameters defined for the worksheet.

6. Click each part of the expression that you want to add to the calculation and click Paste. The item or function moves to the Calculation text box. You can also drag from the box on the left to the Calculation text box.
7. Click the operator (for example, + or -) button to add mathematical operations to the Calculation text box.

8. Continue to add items, functions, operators, and so forth until you complete your calculation expression.
9. Click **OK** to save the expression. The **Edit Worksheet** dialog appears and displays the name of the calculation you just created or edited.
10. To apply the calculation to your worksheet, make sure it has a checkmark in the box next to its name.
11. Click **OK**.

NOTE: To see more examples of Calculations, refer to [Calculation Examples](#).

Totaling Numeric Data

When working with numeric information, you often need to see various summations of the data. Totals can sum rows and columns of numbers, find averages and standard deviation, compute subtotals and grand totals, and so on. When you add a Total to a worksheet, Discoverer automatically adds a column or row to the worksheet for the totals data.

In the example below, the Worksheet contains a sub-total for each Region and a grand total for all Regions.

Page Items: Year: 2000

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

[Click to learn more about
Displaying Existing Totals
Creating a New Total
Editing a Totals Definition](#)

See also:

[Pivoting Data
Drilling Into and Out of the Data
Duplicating Tables and Crosstabs
Adding Calculations to Worksheets
Sorting Data
Calculating Percentages](#)

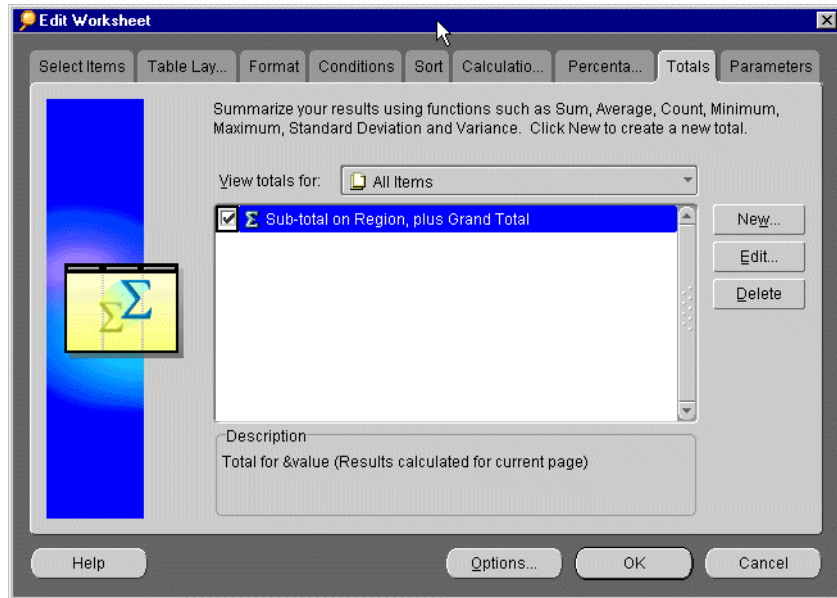
Displaying Existing Totals

You can define totals for a worksheet and then display them on the worksheet or not.

To display totals or subtotals on a table or crosstab:

1. Open the worksheet to which you want to add a total.

- From the menu, choose **Tools | Totals**. The **Edit Worksheet** dialog appears with the **Totals** tab selected. The list of totals shows all currently defined totals.



- Click the box in front of the Total definition so that a checkmark appears.
- Click **OK**. Discoverer now computes the totals and displays them in the table or crosstab.

To remove the totals from the data:

- From the menu, choose **Tools | Totals**. The **Totals** dialog appears.
- Click the checkmark box(es) to remove the checkmark.
- Click **OK**. Discoverer removes the totals from the table or crosstab.

Creating a New Total

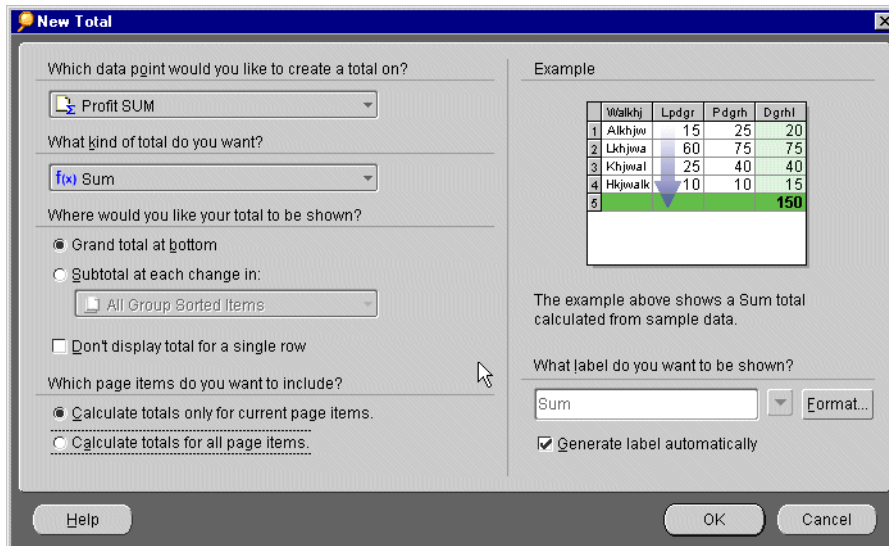
Creating a new totals definition has three steps:

- Select the totals to calculate.
- Select the type of total and where to place it in the table or crosstab.

- Create a label for the totals column or row.

To create a new totals definition:

1. Open the worksheet to which you want to add a total definition.
2. From the menu, choose **Tools | Totals**. The **Edit Sheet** dialog appears with the **Totals** tab selected.
3. Click the **New** button. The **New Total** dialog appears.



4. Click the data point drop-down list and select the data point to use for totaling data; for example, Profit SUM.

You can also create totals for all the data points on the worksheet by selecting **All Data Points** from the drop-down list.

5. Click the drop-down list for the kind of total you want and select the calculation to use for totaling data.

The options are:

Sum—Adds all the values.

Average—Adds all the values and divides by the number of values.

Average Distinct—Adds all the unique values and divides by that number of values. Duplicated values are not included. For example, if a set of values includes 3, 3, 4, 5, 5, 6, and 7, the calculation of the distinct average is $3+4+5+6+7$ divided by 5. The duplicate values of 3 and 5 are not included.

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.

Standard Deviation Distinct—Calculates the standard deviation, but only using unique, unduplicated values.

Sum Distinct—Adds the values, but only using unique, unduplicated values. For example, the sum distinct of 3, 3, 4, 5 is $3+4+5=12$. The duplicate value of 3 is not included.

Variance—Calculates the variance. Variance is the sum of the squares of the differences between each value and the arithmetic mean, all divided by the number of values.

Variance Distinct—Calculates the variance, but only using unique, unduplicated values.

Percentage of Grand—Calculates the Grand Total of the row or column, then finds the percentage of the current column or row of the Grand Total.

Percentage of Grand Distinct—Calculates the percentage of the Grand Total of the row or column, but only using unique, unduplicated values.

6. Select where you want the total to be shown.

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 on right (crosstab only)—Calculates the Grand Total for a row and displays it in a column on the right side of the crosstab.

Subtotal at each change in—click the drop-down arrow to select the data item to use for the totals. For example, if you sort the data by Region, and want to see profits by region, select Region as the data item. Then, Discoverer automatically displays the total profit for each region on a separate line.

All Group Sorted Items—displays totals for items set to be group sorted. For example, if the table contains two columns of numeric data set to be group sorted,

subtotals are displayed for both columns. Data points not appropriate for the type of total are not displayed.

For example, Region is a set of data points but summing Region by its data points doesn't make sense—it would be like trying to add “Central” to “East”. In this case, Regions are not summed even if it is a group sorted item.

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.

Don't display subtotal for a single row—If the group of data consists of a single row, do not display a subtotal for it (the row's data value and subtotal are the same).

7. Click one of the options for the current page or all the pages of the worksheet.
8. Click the option to generate the label automatically if you want Discoverer to generate a label based on the data items being totaled.

You can click the drop-down list for labels and choose additional options for the title from it. The options 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. In the actual labels in 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
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

If the total calculates for all data points (as selected at the top of the dialog), 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 in the dialog and edit it as you would regular text.

9. Click **OK** when you're finished creating the Total.

Editing a Totals Definition

To edit a totals definition:

1. Open the worksheet with the Total you want to edit.
2. From the menu, choose **Tools | Totals**. The Edit Sheet dialog appears with the Totals tab selected.
3. Select the definition you want to edit in the **Totals** dialog.
4. Click the **Edit** button. The **Total** dialog appears.
5. Make the changes you want.
6. Click **OK**. The totals definition is now edited.

Calculating Percentages

Calculating percentages of numbers is a typical data analysis task. Using the Percentages feature, you specify the data to use to calculate a percentage as well as the value to use to represent the percentage (Grand Total, Subtotal, and so on).

Note: Due to rounding of data, percentages might not add exactly to 100.

In the following example, Percent Profit SUM shows the Profit SUM for each Region as a percentage of total profit for all three Regions.

	> Region	Department	Profit SUM	Percent Profit SUM
1	Central	Video Rental	\$25,157	8%
2		Video Sale	\$69,493	22%
3	Total for Central		\$94,651	
4	East	Video Rental	\$40,402	13%
5		Video Sale	\$109,637	34%
6	Total for East		\$150,039	
7	West	Video Rental	\$23,521	7%
8		Video Sale	\$52,092	16%
9	Total for West		\$75,613	
10	Total for All Values		\$320,301	

[Click to learn more about](#)

[Displaying Existing Percentages](#)

[Creating a New Percentage](#)

[Displaying Existing Percentages](#)

See also:

[Pivoting Data](#)

[Drilling Into and Out of the Data](#)

[Duplicating Tables and Crosstabs](#)

[Adding Calculations to Worksheets](#)

[Totaling Numeric Data](#)

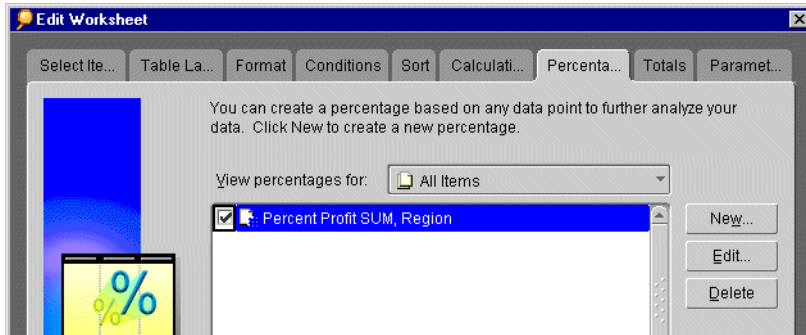
[Sorting Data](#)

Displaying Existing Percentages

You can define many Percentages definitions and then display them if you want on the worksheet. You can also display the percentage of Subtotals and Grand Totals of the data.

To display percentages on a worksheet:

1. From the menu, choose **Tools | Percentages**. The **Edit Worksheet** dialog appear with the **Percentages** tab selected. It shows the percentages already defined for the worksheet.



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 worksheet.

To remove the percentages from the worksheet:

1. From the menu, choose **Tools | Percentages**. The **Percentages** dialog appears.
2. Click the checkmark box(es) to remove the checkmark.
3. Click **OK** to remove the percentages from the worksheet.

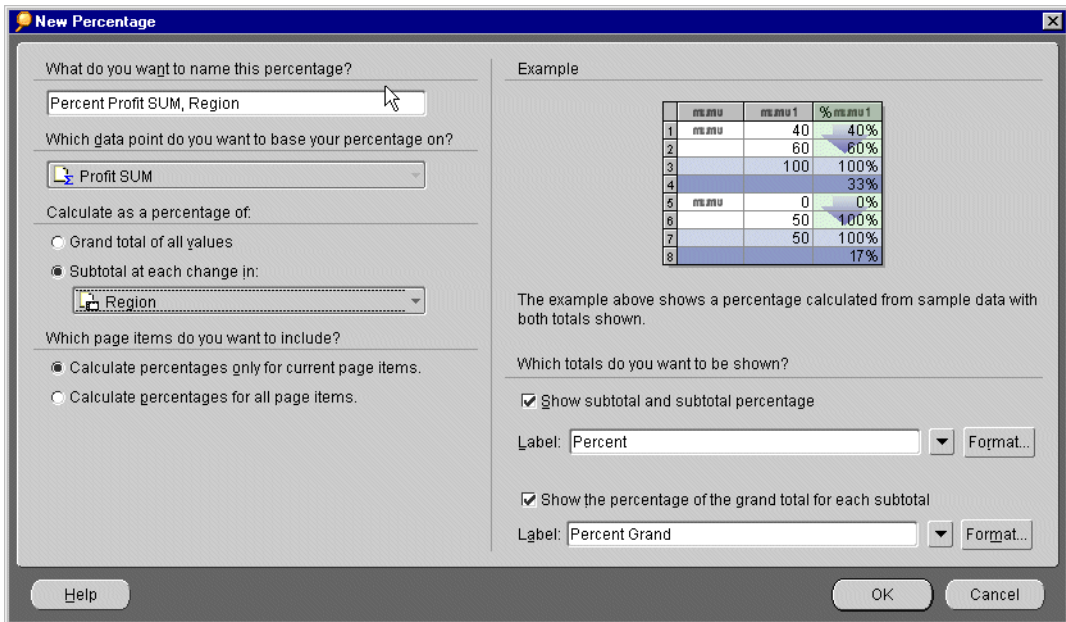
Creating a New Percentage

Creating a new percentage definition has three basic steps:

- Select the data item for calculating the percentage.
- Choose to calculate the percentage of a total or of subtotals.
- Create a label for the percentage column.

To create a new percentage definition:

1. From the menu, choose **Tools | Percentages**. The Edit Worksheet dialog appears with the **Percentages** tab selected.
2. Click the **New** button. The dialog for a new definition appears. The following example is for creating a new percentage for a crosstab worksheet. The dialog for a table worksheet is similar.



3. Click in the box for the name of the percentage definition and type a name for it.
4. Click the drop-down list to see the list of data points to use to calculate percentages. Select the data item from the list.
5. Select one of the options to calculate a percentage.

The following table lists your choices:

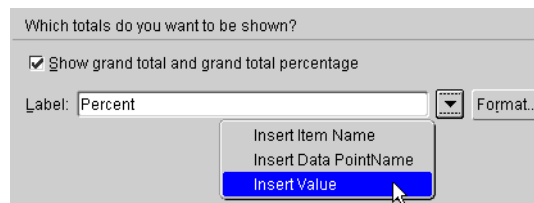
Option	Description
Grand total of all values	Calculates the percentage of the Grand Total for all the columns and rows.

Calculating Percentages

Option	Description
Grand total for each column (crosstab only)	Calculates the percentage of the Grand Total for each column.
Grand total for each row (crosstab only)	Calculates the percentage of the Grand Total for each row.
Subtotal at each change in	Calculates the percentage and places it at each new value for the selected item. Select the item from the drop-down menu where you want the percentage to be displayed when the value changes. This option is usually used for data sorted as groups and you want to see the percentage amount for each group rather than for each individual item.

The illustration on the right side of the dialog shows a representative worksheet containing percentage columns based on your selections.

6. Select to display the percentages for all page items, or only for the current page items.
7. On the right side of the dialog, select whether to display the total amount as well as the percentage. For example, if you select to calculate percentages for subtotals at each change in the City data item, you can also select to display the subtotals and their percentages, and subtotals as a percentage of the Grand Total.
8. Type labels for the percentages, or click the drop-down lists for labels and choose additional options.



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 in 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

Option	Example	Sample label(s)
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 in the dialog and edit it as you would regular text.

9. Click **OK** to return to the **Percentages** dialog with the new definition. Click **OK** to display the new percentage to the worksheet.

To edit a percentage definition:

1. From the menu, choose **Tools | Percentages**. The **Edit Worksheet** dialog appears with the **Percentages** tab selected.
2. Select the definition you want to edit.
3. Click the **Edit** button. The **Edit Percentage** dialog appears.
4. Make the changes you want.
5. Click **OK**. The percentage definition is now edited.

Graphing Your Data

A graph is a pictorial presentation of numeric data. A graph is also an analysis tool that you use to visually highlight relationships or trends. Types of graphs include area, bar, line, pie, scatter graphs, and others. Values from worksheets, or *data points*, are displayed as bars, lines, pie slices, etc.

Discoverer provides the **Graph Wizard** to help you create and edit graphs. A series of dialogs takes you through the processes of choosing the data that you want to graph, what kind of graph you want, and how the graph should look.

[Click to learn more about Graphing terminology](#)
[Choosing the best graph type for your data](#)
[Graph Types Described](#)

See also:

[To create a graph](#)
[To set your font options](#)
[To position your graph](#)
[Saving Your Graph](#)
[To delete a graph](#)

About Worksheets and Graphs

Each Discoverer worksheet can have one graph. If you already have a graph in a worksheet and want create a completely new graph, you can either:

- First delete the existing graph, then create a new graph.
- Duplicate the worksheet to create a new worksheet, then create a graph for the new worksheet, (using the options **Sheet | Duplicate as Table** and **Sheet | Duplicate as Crosstab**).

For more information about deleting graphs, refer to [Deleting Your Graph](#).

If you change the data in a worksheet, the graph automatically updates to show the new data. Graphs are also automatically saved with the worksheet. You do not have to save a graph, although you can edit it or delete it if you wish.

Graphing terminology

The terminology below appears in the **Graph Wizard** and in the documentation.



Group

In a graph, a *group* is a subset of the displayed data, generally Markers that are connected to each other or are aligned with each other. For example, in a stacked bar graph, each stack of bars is a group.



Marker

A *Marker* is a graphical object that represents data values. Data Markers can be bars (in bar graphs), lines (in line graphs), slices (in pie graphs), areas (in area graphs), or data points (in scatter graphs). Markers of the same shape and color are referred to as a data series.



Label

Labels are text attached to graph Markers. For example, if your graph shows four bars that represent sales for each quarter, the labels at the top of each bar could show the total sales amount in each quarter. Both the X-axis and the Y-axis can have labels. Even the individual slices of a pie chart can have labels.



Legend

A *legend* explains the Markers in a graph. A legend displays the data Markers for the data that the Markers represent. For example, if your graph shows three bars that represents the three months in a quarter, the legend explains which colored bar corresponds to which month.

Choosing the best graph type for your data

To present your worksheet data visually in Discoverer, you can choose from 12 graph types. For example, Bar Graph, Line Graph, and Pie Graph. Each graph type has one or more variations, or *sub-types*. For example, the Area Graph has three sub-types: Area, Percent Area, and Stacked Area.

Most graph sub-types have a three-dimensional effect that you can switch on and off as required (using the 3D-Effect check box).

Note that the 3D-Effect should not be confused with three-dimensional graphs, such as **3D-Cube** and **Surface**, which are used to represent multi-dimensional data.

Some graphs also have a dual-Y sub-types, which have two Y-axes. Dual-Y graphs are useful for showing the following types of data:

- data of different measures (such as Sales on the Y1-axis and Profit on the Y2-axis)
- data of different scales (such as Region Sales on the Y1-axis and Percent of Total Sales on the Y2-axis).

(See also notes in Creating Dual-Y Charts.)

Graph Types Described



Bar graph

A graph that compares values using vertical bars. Each value is represented by a single bar. A bar graph shows variation over a period of time or illustrates comparisons between values. The stacked sub-type shows each value's relationship to a whole.



Horizontal Bar graph

Identical to a bar graph except that the bars lie horizontally, rather than standing vertically. Horizontal bars place more emphasis on comparisons and less emphasis on time. The stacked sub-type shows each value's relationship to a whole.



Line graph

A graph that shows trends or changes in data at even intervals. Data is represented as a line that connects a series of data points. Although similar to an area graph, a line graph emphasizes trends.



Point graph

Similar to a line graph in that data is represented by points, however the data points are not connected by a line.



Area graph

A type of graph in which data is represented as a filled-in area.



Pie graph

A graph in which data is represented as sections of a circle, making the circle look like a sliced pie. A pie graph shows the proportion of parts to a whole. It is useful for emphasizing a significant element, such as the highest value. Note that a pie graph always displays only one data series, that is, one row or one column of data at a time.



Polar graph

A circular scatter graph. The circular shape allows you to present cyclical data and is especially useful for showing directional data.



Scatter graph

A graph with points scattered over the plot area. Each point is a value whose coordinates are specified by two numeric measures. A scatter graph shows relationships between two measures, for example Sales and Cost. A scatter graph is useful for comparing two measures that both have many values. All points are the same size, regardless of their value.



Bubble graph

Bubble graphs add another measure to the points of a scatter graph because the size of the bubble is significant. Each bubble is a value whose coordinates are specified by three numeric measures. A bubble graph shows relationships between three measures, for example Quarter, Sales, and Profit. The third measure determines the size of the bubble. A bubble graph is useful for comparing three measures that have many values. (See also notes in Creating Bubble Graphs.)



Stock graph

A graph in which each data Marker typically shows three values, such as the high, low, and closing stock price. Stock graphs are useful for comparing the prices of different stocks or the stock price of an individual stock over time. (See also notes in Creating Stock Charts.)



3D graph

A true three-dimensional graph, where you can see an X edge, a Y edge, and a Z edge. 3D graphs have a floor, a wall, and a background. There are four 3D graph sub-types: 3D Bar, 3D Cube, 3D Area, and 3D Surface. These types of 3D graphs are useful for showing trends or to compare values. Note, this graph type is not the same as one created using the 3D Effect checkbox. The 3D Effect checkbox allows you to add depth to any graph type.

Notes on creating Graphs

To create meaningful graphs in Discoverer, you need to have the correct Worksheet configuration for the style of graph that you wish to use. This section contains advice on getting the best results when using graphs in Discoverer.

Creating Bubble Graphs

When you create Bubble Graphs, follow these guidelines:

- You need at least three Items.
 - the X Item- the Bubbles's location on the X-axis.
 - the Y Item- the Bubbles's location on the Y-axis.
 - the Z Item - the size of the Bubbles, (which should be positive numbers).

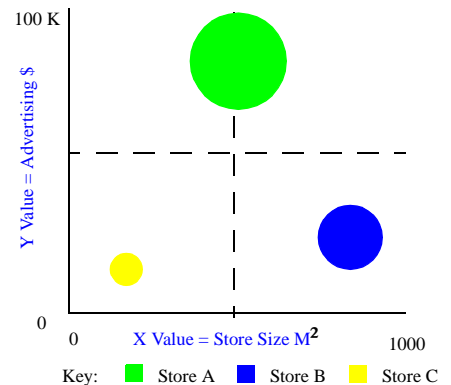
For example, if the Marker Bubble is Sales, the X and Y axes could show Advertising costs and Store Size in square metres (M²). You could then see whether the largest stores with the most advertising generated the highest Sales revenue. Figure 3-1 below shows how the Worksheet data arranged 'Series by row' is represented on a Bubble Graph. The bubbles represent Sales. The larger the bubble, the larger the Sales revenue.

Figure 3-1 Example Data Configuration for a Bubble Graph

Example Worksheet Data Configuration

Store	Advertising	Store Size	Sales
Store A	80000	500	900,000
Store B	20000	900	500,000
Store C	10000	100	100,000

Example Worksheet Bubble Graph



Creating Stock Charts

When you create **High-Low-Close Stock Graphs**, follow these guidelines:

- You need at least three Items in the following order:
 - High price
 - Low price
 - Closing price
- Stock values for High, Low, and Closing prices must appear on the same row or column series as groups of three.
- To display data for more than one period, the data must be in multiples of three, such as three columns for period 1, three columns for period 2, and so on.
- High-low-close stock graphs usually have only one series of data. The series should be the name of the stock whose prices you show in the graph.
- If a high-low stock graph contains more than one series of data, and prices overlap, some stock Markers will obscure other stock Markers.

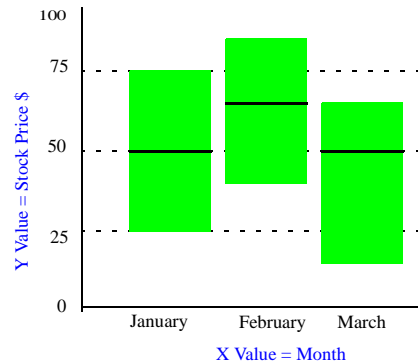
For example, Figure 3-2 shows a Worksheet configuration for charting a stock price over time, (January, February and March).The Worksheet data arranged 'Series by row'.

Figure 3-2 Example Data Configuration for a High-Low Stock Chart

Example Worksheet Data Configuration

January			February			March			Etc
High	Low	Closing	High	Low	Closing	High	Low	Closing	Etc
75	20	50	80	35	60	75	60	50	Etc

Example Worksheet Stock Chart



Creating Dual-Y Charts

When you create graphs with Dual-Y series, follow these guidelines:

- The Dual-Y facility can be used with the following types of Graph:
 - Bar
 - Line
 - Area
- Dual-Y Graphs require at least two series of data.
- By default, the series are displayed in the following way:
 - Series 1 is displayed on the Y1 axis.
 - Series 2 is displayed on the Y2 axis.
 - All subsequent series are displayed on the Y1 axis.

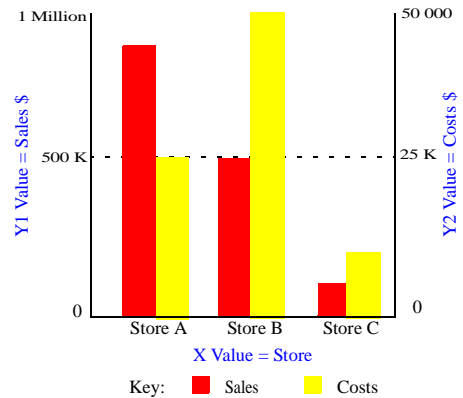
In Figure 3-3 below, the Y1 axis represents Sales on the scale 0 to 1 Million. The Y2 axis represents Costs on the scale 0 to 50,000. The **Plot Area** tab of the **Graph Wizard** can be used to change which Y-axis is used for each series.

Figure 3-3 Example Data Configuration for a Dual-Y Bar Graph

Example Worksheet Data Configuration

Store	Sales \$	Costs \$
Store A	900,000	25,000
Store B	500,000	50,000
Store C	100,000	10,000

Example Worksheet Dual-Y Bar Graph

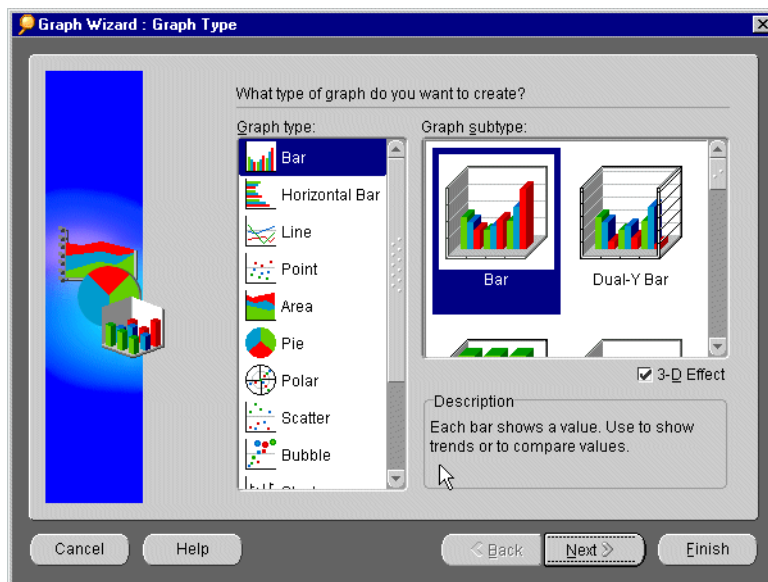


Creating a Graph

Discoverer provides the **Graph Wizard** to help you create a graph of your worksheet data. Each time you use the **Graph Wizard**, Discoverer saves your settings for the next graph you create. If at any time you want to use your previous settings for the remaining steps, simply click the **Finish** button.

To create a graph

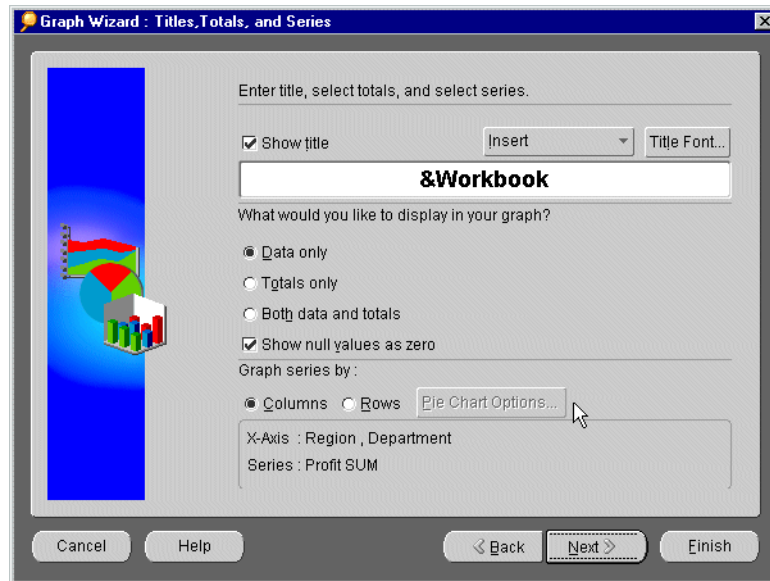
1. From the **Graph** menu, choose **New Graph**. The **Graph Wizard** appears.



2. Choose the type of graph that you want by clicking an icon in the **Graph type** box on the left side. The corresponding graph sub-types appear in the **Graph sub-type** box on the right side. Choose a graph sub-type (for example, Bar or Dual-Y bar).

The **Description** box at the bottom of the **Graph Wizard** describes the purpose of each graph type. If you are unsure what type of graph to use, see “Choosing the best graph type for your data” on page -37. If active, click the **3D Effect** checkbox to add depth to any graph type.

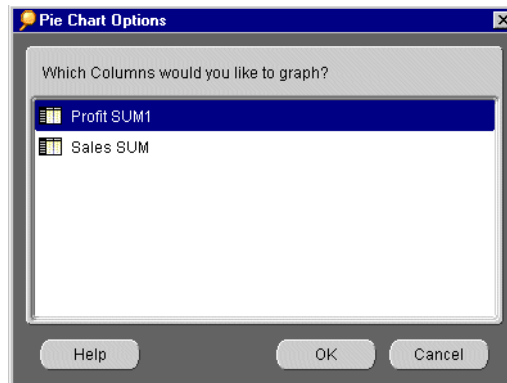
Click **Next**. The **Titles, Totals, and Layout** dialog appears:



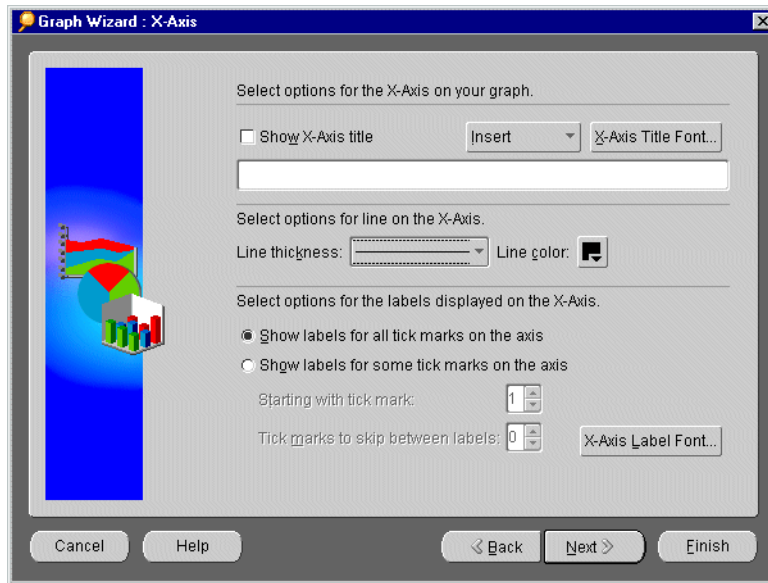
3. If you want a title on your graph, put a checkmark in the **Show Title** checkbox. Type the title you want in the text box. If you want to add the date, time, or other worksheet information to the title, click the **Insert** drop-down menu and select the element you want to insert. Click the **Font** button to choose the font size and color for your title, (refer to “Choosing Font Options” on page 3-51 for more information about setting fonts).
4. Answer the question, "What would you like to display in your graph?" by clicking one of the radio buttons:
 - **Data Only** to graph all the data point values of your worksheet but exclude any totals.
 - **Totals Only** to graph only the data in the Totals columns or rows of your worksheet.
 - **Both Data and Totals** to graph everything in your worksheet, both the individual data points and their totals.

Put a checkmark in the **Show null values as zero** checkbox if you want a Marker with a zero value for all null values. Otherwise, null values are not represented in the graph.

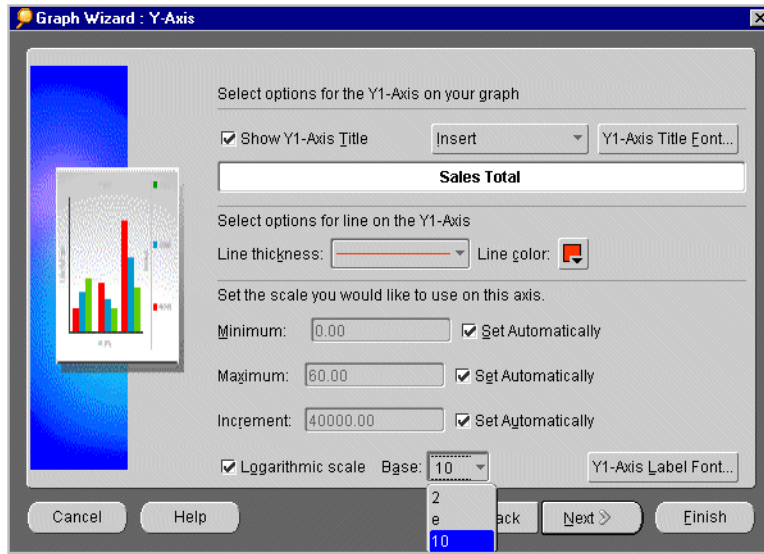
5. Click a radio button to choose whether you want to graph a column or a row of data. Note that a Pie chart shows values as parts of a whole, so you can graph only one column or row at a time. If you are *not* creating a Pie chart, skip to step 7.
6. Click the **Pie Chart Options** button for additional controls. The **Pie Chart Options** dialog appears.



7. The **Pie Chart Options** dialog lists the columns or rows that you currently have in your worksheet. Click the one that you want to graph, and then click **OK** to return to the **Titles, Totals, and Layout** dialog.
8. Click **Next**. If you are creating a Pie chart, skip to step 17. If you are *not* creating a Pie Chart, the **X-Axis** dialog appears.

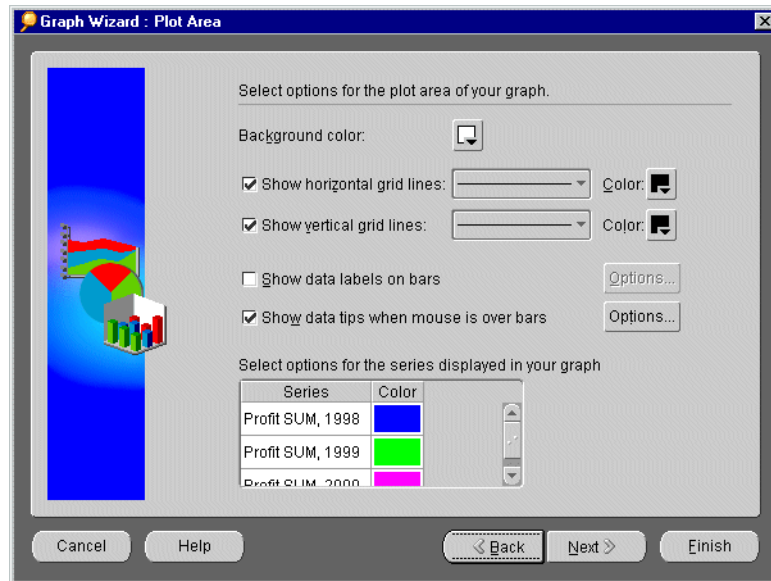


9. Like the graph itself, the X-axis can also have its own title. If you want a title on the X-axis, click the **Show X-Axis Title** checkbox. Type the title you want in the text box. If you want to add a data item name to the title, click the **Insert** drop-down menu and select the item that you want to insert. Click the **Axis Title Font** button to choose the font size and color for your X-axis title, (refer to “Choosing Font Options” on page 3-51 for more information about setting fonts).
10. If you want a thicker line to indicate the X-axis, select the line thickness that you want from the **Line thickness** drop-down menu. Choose a color for the line from the **Color** palette.
11. If you also want a label for the tick marks on the X-axis, click a radio button and select how often you want labels to appear. Click the **Axis Label Font** button to choose a font size and color for labels, (refer to “Choosing Font Options” on page 3-51 for more information about setting fonts).
12. Click the **Next** button. **The Y-Axis** dialog appears.

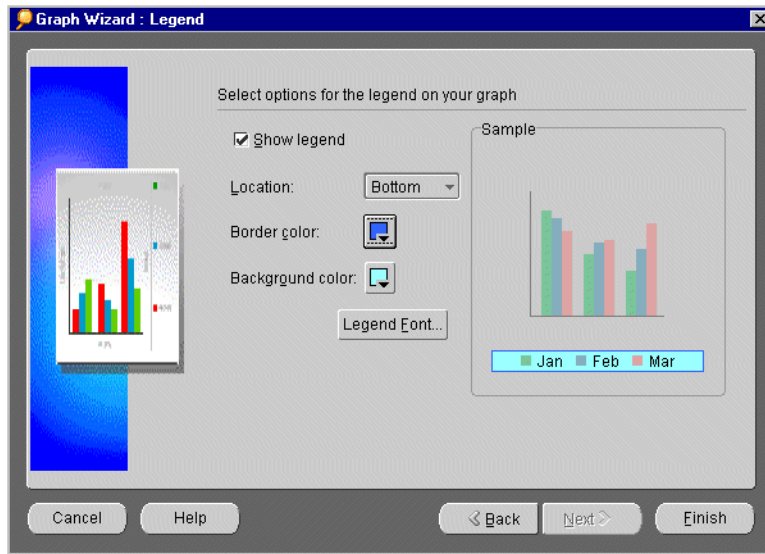


13. Like the X-axis, the Y1-axis can also have its own title. If you want a title on the Y1-axis, click the **Show Y1-Axis Title** checkbox. Type the title you want in the text box. If you want to add the name of the data item to the title, click the **Insert** drop-down menu and select the item that you want to insert. Click the **Axis Title Font** button to choose the font size and color for your Y1-axis title, (refer to “Choosing Font Options” on page 3-51 for more information about setting fonts).
14. If you want a thicker line to indicate the Y1-axis, select the line thickness that you want from the **Line thickness** drop-down menu. Choose a color for the line from the **Color** palette.
15. Discoverer will automatically set the scale for your Y1-axis data by measuring the lowest and highest values. However, if you want to choose your own scale, uncheck the **Set Automatically** checkboxes, and then type the scales that you want for your data, for example, Revenues in Thousands from 0 to 60 in increments of 10. Or check the **Logarithmic scale** checkbox, and then choose a Log base (example, log 10) from the drop-down menu.
16. Click the **Axis Label Font** button to choose a font size and color for the axis labels, (refer to “Choosing Font Options” on page 3-51 for more information about setting fonts).

17. Click the **Next** button. If you are creating a Dual-Y graph, the **Y2-Axis** dialog appears. Repeat steps 12 through 16 for the second Y-axis. Otherwise, continue to step 17.
18. The **Plot Area** dialog appears. Do any of the following:



- Click the color palette icon to choose a background color.
 - Click the Horizontal and Vertical gridlines checkboxes, and then choose a line width and color for each.
 - Insert a checkmark to add labels for data Markers. To decide whether the label should appear on top of a Marker or inside a Marker (for example, on top of a bar or inside a bar), click the **Options** button next to this selection.
 - Insert a checkmark to add text that pops-up whenever you hover the mouse over a data Marker. Click the **Options** button next to this selection to decide what text to display in the pop-up.
 - Select options, such as color, for series (rows or columns from your worksheet) that are displayed in your graph. For a dual-Y graph, select which axis to use for each series.
19. Click the **Next** button. The **Legend** dialog appears.



20. If you want to show a Legend on your graph, click the **Show legend** checkbox. Choose where you want to position the legend on the graph from the **Location** drop-down menu. Select a border color and background color from their color palettes. Click the **Legend Font** button to choose a font size and color for text that appears in your legend.

NOTE: Once you have created your graph, you can reposition the legend by dragging it with the cursor.

21. To change any of your choices, click the **Back** button until you return to the dialog that you want. When you are ready to create the graph, click the **Finish** button. After a short delay, the graph appears. [To position the graph, see Positioning Your Graph with Your Worksheet.](#)

Choosing Font Options

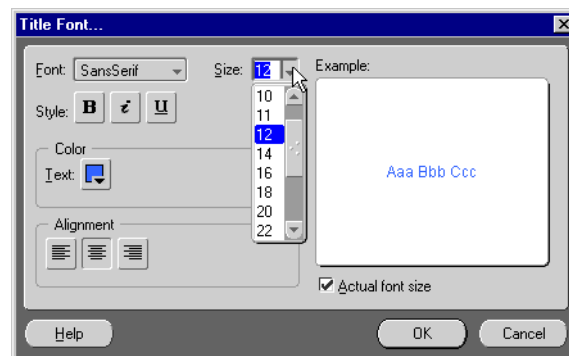
The **Font Options dialog** is used to set the font style for the various components of your graph. You can call this dialog from the following Discoverer dialog boxes, (see example screen shot of the **Title Font** dialog below).

Table 3-1 How to call the Font Dialog from the Graph Wizard

Discoverer Dialog Box	Button Option used to call the Font Options dialog
Graph Wizard: Titles, Totals, and Layout	Font
Graph Wizard: X-Axis	Axis Title Font
Graph Wizard: X-Axis	Axis Label Font
Graph Wizard: Y1-Axis	Axis Title Font
Graph Wizard: Y1-Axis	Axis Label Font

To set your font options

1. Select a font style from the **Font** drop-down menu. Select a font size from the **Size** drop-down menu. Click any combination of **Style** buttons for bold, italic, and underlined styles. Select a color for your text from the **Text** color palette.
2. Also, click one of the **Alignment** buttons to align your text to the left, center, or right. The **Example** area on the right shows you how your text will appear in your graph. (Click the **Actual font size** checkbox to see how large the text will look on your graph.) Click **OK** to return to the previous dialog.



Positioning Your Graph with Your Worksheet

Positioning the graph with your worksheet affects how they appear together on screen. Positioning the graph does not affect the order that the worksheet and graph print.

To position your graph

1. From the **Graph** menu, choose **Display Graph**.
2. From the **Display Graph** sub-menu, click one of the following:
 - **Separate Window** to display the graph in a window that floats above the worksheet window. You can move the graph window to any location on your screen by dragging it with the mouse.
 - **Right of Data** to display the graph in a window that is connected to the right side of the worksheet window.
 - **Left of Data** to display the graph in a window that is connected to the left side of the worksheet window.
 - **Above Data** to display the graph in a window that is connected to the top of the worksheet window.
 - **Below Data** to display the graph in a window that is connected to the bottom of the worksheet window.
 - **Hide/Unhide Graph** to display the graph or hide the graph. The Hide option does not delete the graph.
3. Click **Fit to window** if your graph is too large to fit completely inside its window panes without scroll bars. The graph resizes so that it is completely visible inside its window.

Using the Graph Toolbar

When working with graphs, you can use the Graph Toolbar to quickly make cosmetic changes to the look of your graphs without using the Graph Wizard. For example, you can change fonts, colors, and text alignment.

Saving Your Graph

When you save a worksheet, Discoverer saves the graph automatically for you as part of the worksheet.

If the data in your worksheet changes, the graph updates automatically. Any changes you make to the graph are also saved automatically when you save the worksheet.

Deleting Your Graph

To delete a graph

1. From the **Graph** menu, choose **Delete Graph**. A warning message appears.
2. Click **Yes** to delete the graph.

Sharing Results with Others

You can share results with others by printing your worksheets and graphs, exporting data to another format (such as an Excel spreadsheet), or specifically sharing workbooks with other people who can also connect to your company's database.

[Click to learn about:](#)

[Printing Worksheets and Graphs](#)

[Exporting Data to Other Application Formats](#)

[Sharing Workbooks](#)

Printing Worksheets and Graphs

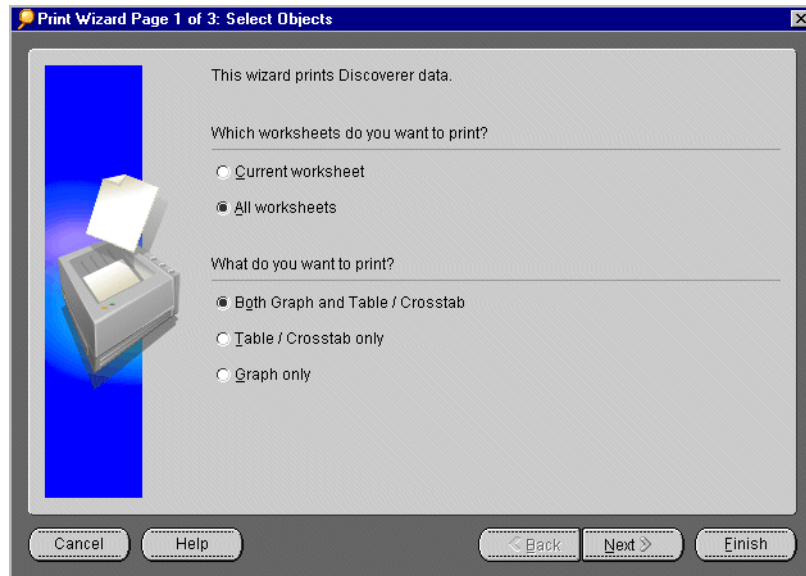
Discoverer provides the **Print Wizard** to help you print your worksheets and graphs. With the help of the **Print Wizard**, you can expect that what you see on screen prints out the same way on paper, including worksheet titles, graph titles and legends, and Page Items. You can print a single worksheet, all worksheets in a workbook, and all graphs associated with any worksheets. Worksheets and their graphs print sequentially so that each graph prints in order immediately after its worksheet.

If your worksheet contains Page Items, note that you can print exactly what you see on screen. To print other combinations of Page Items, first pivot the Page Items and then print your modified worksheet. To pivot Page Items, see “Pivoting Data” on page 12. Also note that pivoting Page Items changes the content of your graph. Before printing, look at your graph to verify that it contains the data that you want to print.

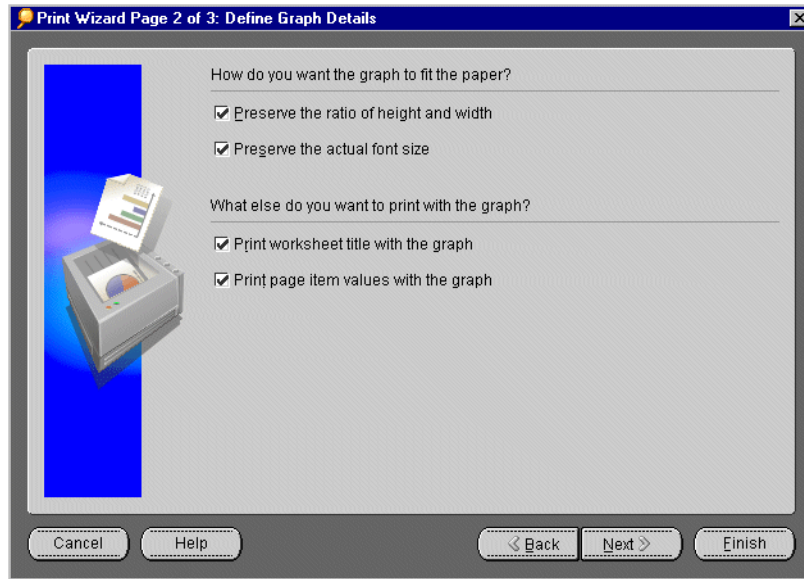
Graphs always print on a single sheet of paper. However, within the boundaries of that sheet of paper you can choose to print the graph at different sizes. You can print the graph the same size that you see on screen or scale the graph to fill the entire sheet of paper or any smaller size. If what you see on screen is too large to fit onto a single sheet of paper, the **Print Wizard** automatically scales the graph to the correct size.

To print worksheets and their graphs:

1. Open the worksheet that you want to print. Make sure it contains the combination of Page Items that you want.
2. From the menu, choose **File | Print**. The **Print Wizard** dialog appears.



3. Select which worksheets you want to print:
 - **Current worksheet**—prints the currently open worksheet.
 - **All worksheets**—prints all worksheets in the workbook.
4. Select whether you want to print both the graph and its worksheet, only the worksheet, or only the graph. Click **Next**. If you choose to print only the worksheet, without any graphs, the **Print Wizard** takes you to the final dialog. Skip to step 6. Otherwise, the second **Print Wizard** dialog appears.



5. Select the size that you want to print your graph:
 - **Preserve the ratio of height and width**—If what you see on screen is larger than a piece of paper, this checkbox scales the graph smaller without distorting the graph.
 - **Preserve the actual font size**—If the graph must be scaled to fit a piece of paper, this checkbox prevents the fonts from also becoming smaller.

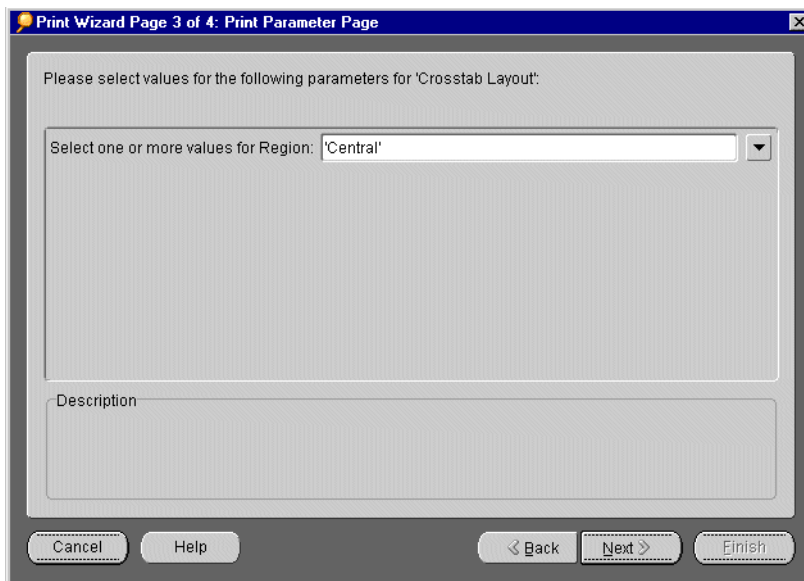
Select the other graph elements that you want to print:

- **Print worksheet title with the graph**—A graph and its worksheet can have different titles. This checkbox prints the worksheet's title onto the paper.
- **Print page item values with the graph**—If your worksheet contains Page Items, this checkbox prints the Page Item values onto the paper; for example, "Region = East".

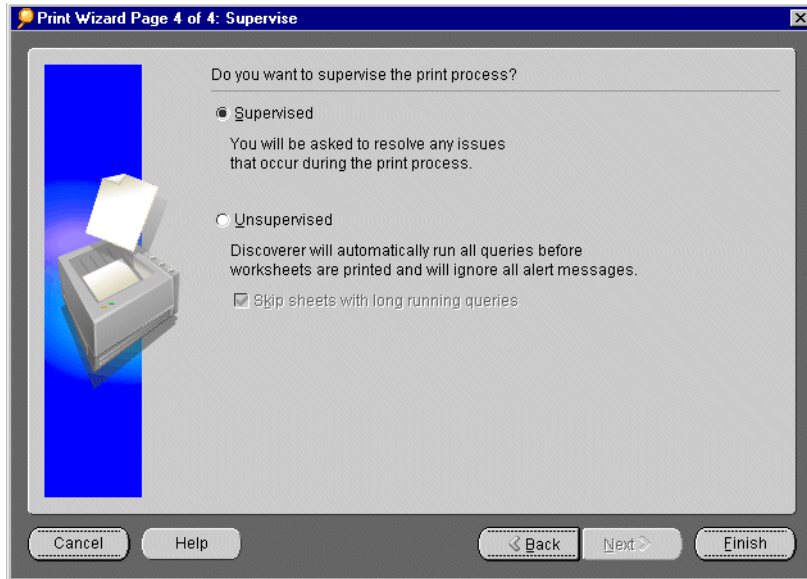
Click **Next**.

6. If you have defined Parameters for the worksheet, the optional **Print Parameter Page** allows you to restrict your printout to certain Items. For example, if a Parameter is created on Year, this page may ask you to enter a Year or choose from a list of Years, e.g. 1998, 1999, or 2000. If you do not want to restrict your printout, close the Print Wizard,

choose Tools\Parameters, and turn off any Parameters by de-selecting the Parameter check boxes, (see section on Creating Parameters).



7. Select whether or not you want to supervise the printing process. Discoverer may occasionally give you alert messages to let you know that queries take a long time or that the database returns more data than the maximum set in the **Options** dialog's **Query Governor** tab (see "**Setting Query Governor Options**" on page 4).



- **Supervised**—select this option if you want to see these alert messages while printing.
- **Unsupervised**—select this option to ignore any alert message while printing.
- **Skip sheets with long running queries**—click this checkbox if you expect that some of the worksheets will take a long time to print and you don't want to wait. The **Print Wizard** prints the rest of the worksheets. You can print the slower worksheets later.

Note: If any worksheets contain parameters, Discoverer will still ask you to choose values for the parameters whether you choose **Supervised** or **Unsupervised**.

8. Click **Finish**. The **Print** dialog belonging to your computer's operating system appears. In the **Print** dialog, you can choose a printer, paper size, and the number of copies that you want. Click **OK** to print your worksheets and graphs.

Note: To print other combinations of Page Items on the worksheet, first pivot the Page Items (see "Pivoting Data" on page 12.) Then from the menu, choose **File | Print** again.

Repeat the printing process for each combination of Page Items. Also note that pivoting Page Items changes the content of your graph. Before printing, look at your graph to verify that it contains the data that you want to print.

Exporting Data to Other Application Formats

Discoverer provides the **Export Wizard** to help you share your worksheets and graphs with other people by exporting them to popular application formats, such as Microsoft Excel or HTML. In fact, because these two formats are so popular in the business world, Discoverer also provides shortcuts from the **Toolbar** and **File** menu to quickly export to Excel and HTML.

With the help of the **Export Wizard**, you can expect that what you see on screen appears as similar as possible in other applications. Exporting a worksheet exports its data; but depending on the type of format you choose, the exported worksheet may also contain its formatting and layout. However, exporting does not export Discoverer features, such as calculations and conditions. In other words, you can view the exported data in another application, but you cannot apply Discoverer features to it in that application.

You can export a single worksheet, all worksheets in a workbook, and all graphs associated with any worksheets. Worksheets and their graphs export as separate files, one file for each worksheet in a workbook and one file for each graph. Note that the **Export Wizard** always exports graphs as GIF files, an image file format that is common on the Web and supported by many business applications. You can also choose to export graphs at different sizes. You can export the graph the same size that you see on screen or scale the graph larger or smaller.

If your worksheet contains Page Items, note that you can export exactly what you see on screen. To export other combinations of Page Items, first pivot the Page Items and then export your modified worksheet. To pivot Page Items, see “Pivoting Data” on page 12. Also note that pivoting Page Items changes the content of your graph so that your worksheet and your graph match. Before exporting, look at your graph to verify that it contains the data that you want to export.

[Click to learn how](#)

[To export to other applications](#)

[To quickly export to Excel](#)

[To quickly save as HTML](#)

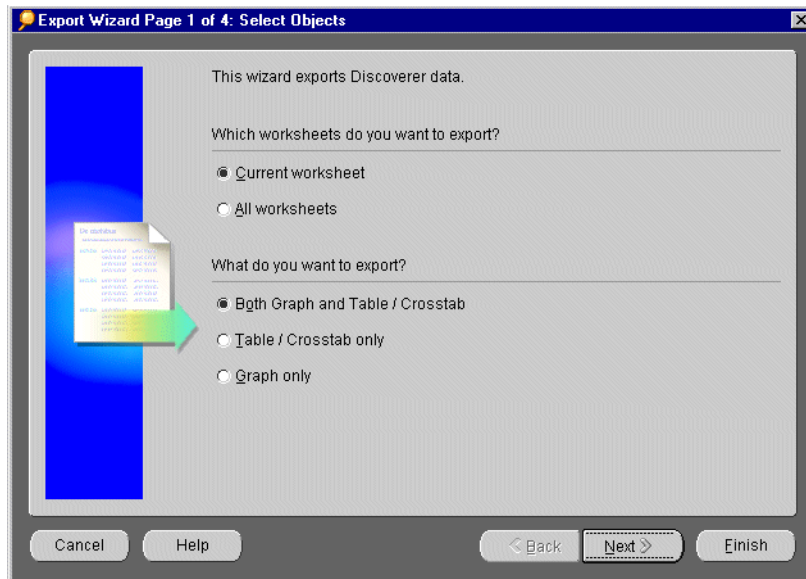
See also:

[Printing Worksheets and Graphs](#)

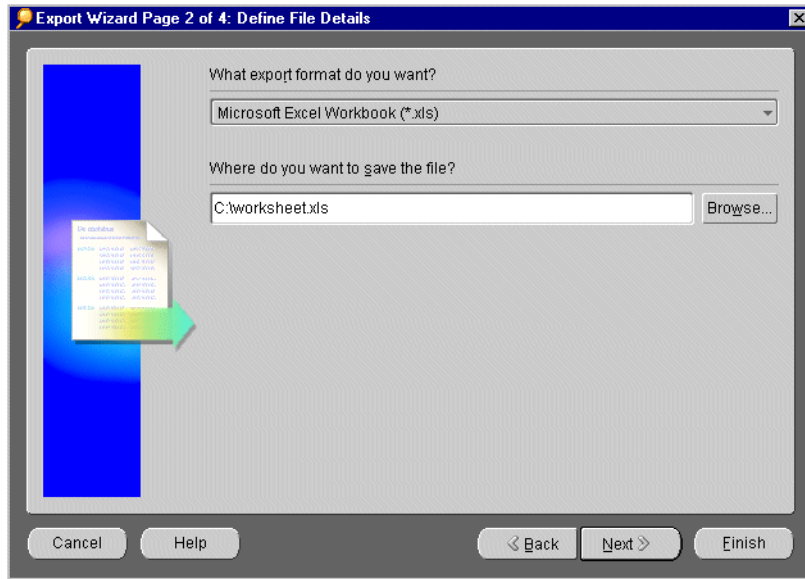
[Sharing Workbooks](#)

To export to other applications

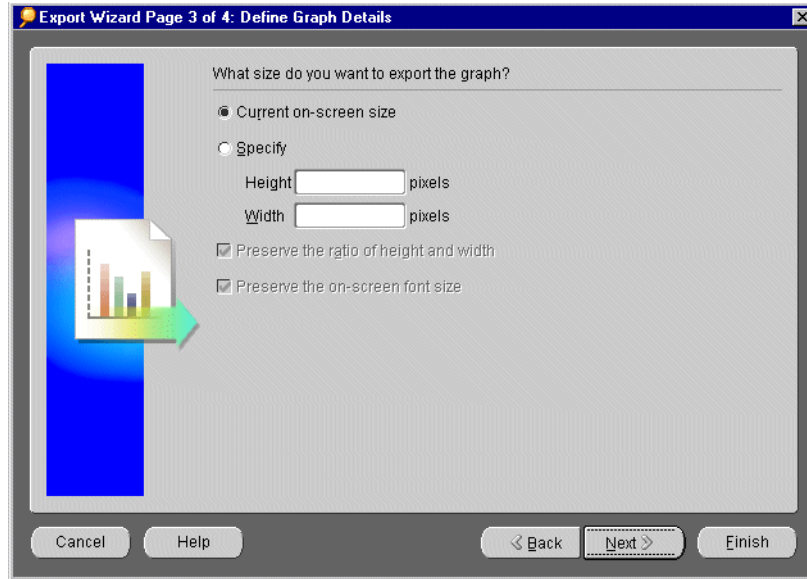
1. Open the worksheet that you want to export.
2. From the menu, choose **File | Export** to start the **Export Wizard**.



3. Select which worksheets you want to export:
 - **Current worksheet**—exports the currently open worksheet.
 - **All worksheets**—exports all worksheets in the workbook.
4. Choose what you want to export.
 - **Both Graph and Table/Crosstab**—exports the data and the graph.
 - **Table/Crosstab only**—exports the data.
 - **Graph only**—exports the graph.
5. Click **Next** to move to page two of the **Export Wizard**.

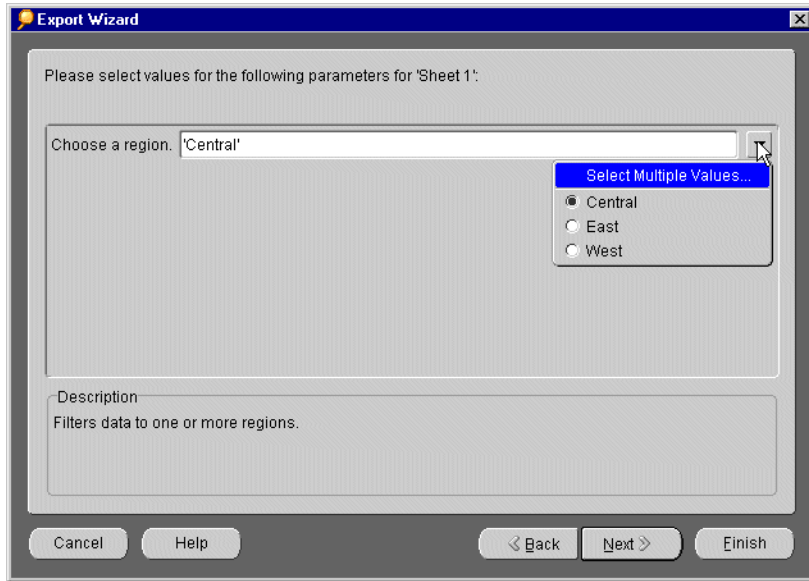


6. Select an export format from the pull down list. You can choose from many popular data formats, such as Microsoft Excel Spreadsheet (*.xls), Hyper-Text Markup Language (*.htm), Tab Delimited Text (*.txt), and others.
7. Type the path to the location on your hard drive (or network drive) where you want to save this exported file. If you are unsure of the correct path, click the **Browse** button to browse to the location that you want.
8. Click **Next** to move to page three of the **Export Wizard**.

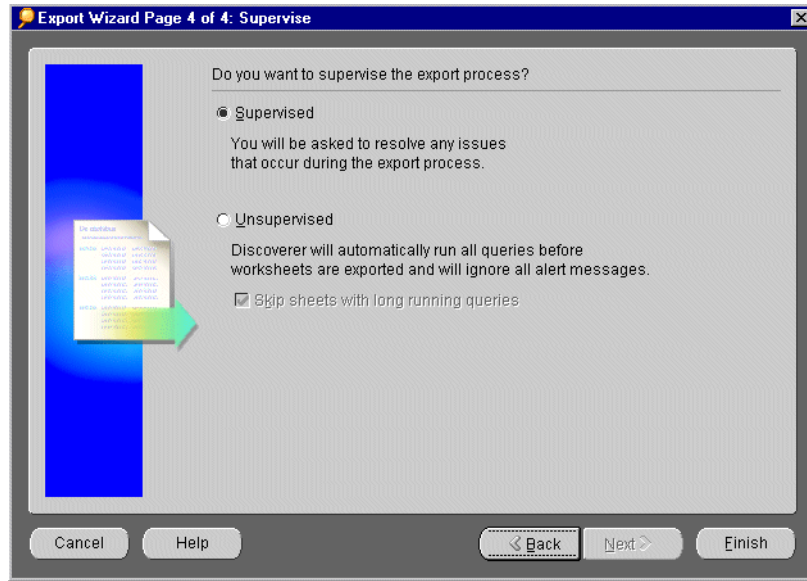


9. Select the size that you want to export your graph and font:
 - **Current on-screen size**—exports the graph the same size that you see on screen. If you resize the graph on screen first, this selection exports the current on-screen size.
 - **Specify**—exports the graph larger or smaller than what you see on screen. Type exact pixel dimensions for height and width; for example, Height 400 pixels and Width 600 pixels.
 - **Preserve the ratio of height and width**—if you specify the height for your graph, automatically set the width OR if you specify the width for your graph, automatically set the height. **Preserve the on-screen font size**—If you specify the exact height and width in pixels for your graph, this checkbox prevents the fonts from changing size.

10. Click **Next** to move to the next page of the **Export Wizard**.



11. If you have defined Parameters for the worksheet, the optional **Choose Parameter Page** allows you to restrict the data in the worksheet according to values that you enter. If you are exporting the whole workbook, this dialog appears for each worksheet.



12. Select whether or not you want to supervise the export process. Discoverer may occasionally give you alert messages to let you know that queries take a long time or that the database returns more data than the maximum set in the **Options** dialog’s **Query Governor** tab (see “**Setting Query Governor Options**” on page 4).

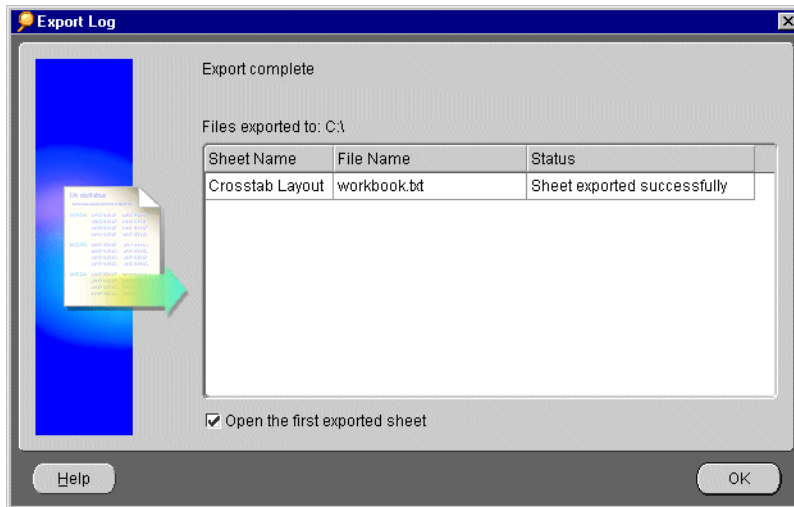
- **Supervised**—select this option if you want to see these alert messages while exporting.
- **Unsupervised**—select this option to ignore any alert messages while exporting. You can also add a checkmark to the checkbox **Skip sheets with long running queries** if you expect that some of the worksheets will take a long time to export and you don’t want to wait. The **Export Wizard** exports the rest of the worksheets. You can export the slower worksheets later.

Note: If the worksheets contains parameters, Discoverer will still ask you to choose values for the parameters whether you choose **Supervised** or **Unsupervised**.

13. Click **Finish** on the **Export Wizard** dialog box. If the worksheet has parameters defined for it, the following dialog box appears. Click the drop-down menus and select the values for the worksheet’s parameters.

14. Click **Finish**.

The worksheets are saved in the new format in the directory you specified. Progress messages appear to let you know how the export process is proceeding. The Export Log then appears so you can check that all worksheets were exported successfully.



15. Do one of the following:

- To view the newly exported worksheets in their new format (for example, in Microsoft Excel or in your Web browser), click the checkbox, **Open the first exported sheet**.
- To view the worksheets later, uncheck this checkbox.


16. Click **OK**.

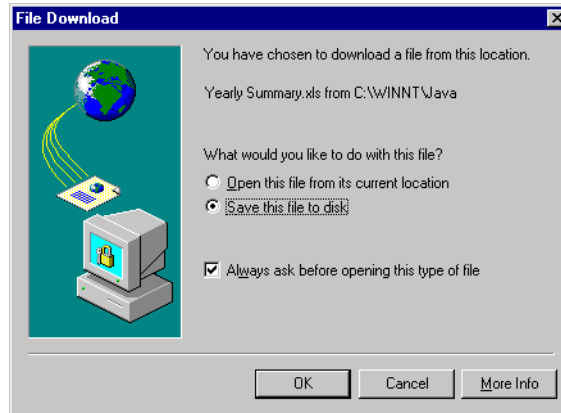
Note: To export other combinations of Page Items on a worksheet, first pivot the Page Items (see “Pivoting Data” on page 12.) Then from the menu, choose **File | Export** again. Repeat the export process for each combination of Page Items. Also note that pivoting Page Items changes the content of your graph. Before exporting, look at your graph to verify that it contains the data that you want.

Exporting to Microsoft Excel and HTML Formats

The Excel and HTML tools on the tool bar helps you quickly export Discoverer worksheets to Microsoft Excel format and HTML format.

To quickly export to Excel


1. Open the worksheet that you want to export to Microsoft Excel. Make sure that it contains the combination of Page Items that you want.
2. From the menu, choose **File | Export to Excel**, (or click the  icon on the toolbar). Depending on the browser you are using, the Download dialog appears.



3. Select one of the options:
 - Open this file from its current location**— the worksheet opens from the database as a Microsoft Excel spreadsheet (*.xls).
 - Save this file to disk**— you can save the worksheet on your local hard disk as a Microsoft Excel spreadsheet (*.xls).

If you deselect the option Always ask before opening this type of file, the Download dialog does not appear when you export a worksheet to Excel.
4. Click **OK**. The worksheet is saved in Microsoft Excel spreadsheet format. If you selected the option to open the file from its current location, Excel launches to display the new Excel spreadsheet.

To quickly save as HTML

1. Open the worksheet that you want to export to HTML format. Make sure that it contains the combination of Page Items that you want.
2. From the menu, choose **File | Export to HTML**, (or click the  icon on the toolbar).

Your worksheet is saved to your default file location (for example, the default file location on your hard disk) and is displayed in your browser.

Sharing Workbooks

Sharing a workbook allows other people to view, analyze, and print the workbook. You can share workbooks with other people two ways:

- Share one workbook with multiple users.
- Share multiple workbooks with one other user.

Sharing workbooks lets others use and analyze the same data. For example, you might want everyone in the accounting department to share a workbook that includes accounts payable and accounts receivable information. Similarly, you might want a project manager to have access to all the workbooks created for the project.

To share workbooks, you use the Shared Workbooks dialog. The two tabs at the top of the dialog are for assigning workbooks to users or users to workbooks.

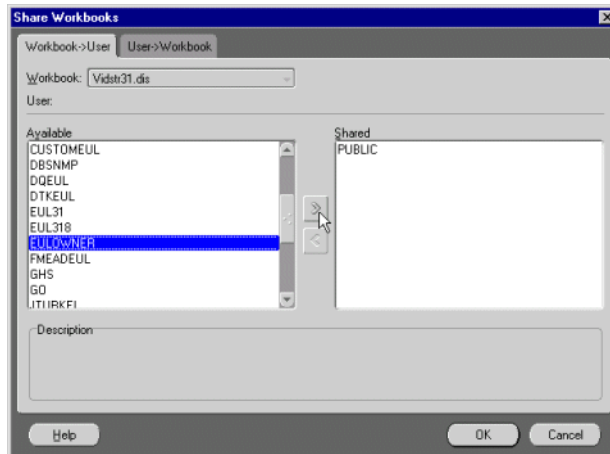
See also:

[Exporting Data to Other Application Formats](#)

[Printing Worksheets and Graphs](#)

To share one workbook with several other people:

1. From the menu, choose **File | Manage Workbooks | Sharing**. The **Share Workbooks** dialog appears.

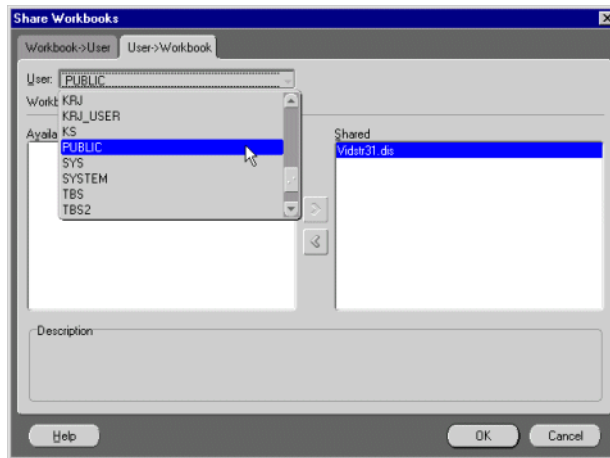


2. Click the **Workbook -> User** tab.

3. Choose the name of the workbook that you want to share from the workbook drop-down list.
4. In the list of **Available Users**, click the name of a person with whom you want to share the workbook.
5. Click **Add**. The person's name appears in the **Shared** list. The names in the **Shared** list are the people who can have access to the workbook.
6. Repeat for all the people with whom you want to share the workbook.
7. Click **OK**.

To share several workbooks with another person:

1. From the main Discoverer menu, choose **File | Manage Workbooks | Sharing**. The **Share Workbooks** dialog appears.



2. Click the **User -> Workbook** tab.
3. Choose the name of the person with whom you want to share the workbook from the User drop-down list.
4. In the list of **Available Workbooks**, click the name of a workbook that you want to share with the other person.
5. Click **Add**. The workbook's name appears in the **Shared** list. The names in the **Shared** list are the workbooks you have shared with others.
6. Repeat for all the workbooks that you want to share with the other person.
7. Click **OK**.

Changing Default Settings

Discoverer's default Graphical User Interface settings determine how Discoverer works, looks and feels. Using the Discoverer **Options** dialog, you can change the default options to suit your preferences and requirements.

Default options apply when you start working with Discoverer. Changes to defaults do not affect previous work. For example, if you use the **Options** dialog to change the formats for new worksheets, the formatting on previous worksheets is not affected.

NOTE: In addition to opening the **Options** dialog from the menus, you can also open it by clicking the **Options** button if available in other dialogs. In that case the options may apply only to the features offered in that dialog.

1. Choose **Tools | Options**. The **Options** dialog appears. The tabs across the top of the dialog list the different option categories.
2. Click a tab to see its options.

[Click to learn more about:](#)

[Setting General Options](#)

[Setting Query Governor Options](#)

[Setting Sheet Format Options](#)

[Setting Default Format Options](#)

[Setting Advanced Options](#)

[Setting EUL Options](#)

[Using SQL](#)

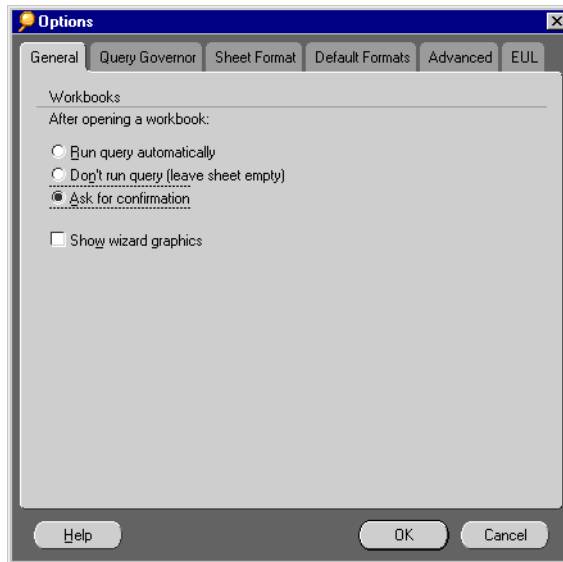
Setting General Options

The **General** options are for opening workbooks and displaying wizard graphics.

To set general options:

1. From the menu, choose **Tools | Options**. The **Options** dialog appears. The tabs across the top of the dialog list the different option categories.

2. Click the **General** tab if it isn't already selected.



3. Select the defaults for opening a workbook and running a query to load the data.

Run query automatically—Discoverer automatically retrieves the data specified by the worksheet in the workbook. Select this option to retrieve data for the worksheet as soon as you open a workbook or click on the tab of a worksheet.

Don't run query (leave sheet empty)—Opens the workbook and worksheet, but does not retrieve any data from the database. That is, the worksheet opens but does not contain any data. A typical reason for selecting this option is to see a different worksheet than the one that opens by default without waiting for the query results.

Ask for confirmation—This is the default selection. After the workbook opens, a dialog asks if you want to run the query for the first worksheet.

Show wizard graphics—Several Discoverer dialogs include artistic graphics (bit-maps). Deselect this option if you don't want to see the graphics in the dialogs.

4. Click **OK**.

See also:
[Setting Query Governor Options](#)
[Setting Sheet Format Options](#)
[Setting Default Format Options](#)
[Setting Advanced Options](#)
[Setting EUL Options](#)
[Using SQL](#)

Setting Query Governor Options

The **Query Governor** options help reduce the amount of time it takes to display data. You can set defaults for Summary Data and for Queries.

Using Summary Data loads data more quickly for the work you do most often. When you request data for a worksheet, Discoverer first checks Summary Tables set up by the Discoverer Administrator to see if their saved data satisfies your request and, if it does, loads the appropriate data quickly. If the Summary Tables' data does not satisfy your request, Discoverer then redirects the request to the detail data.

CAUTION: Do not use Summary Tables if you normally work with the most current data in the database. The saved data in the Summary Tables remains constant until updated with new data. Summary Tables should be updated periodically to incorporate new data.

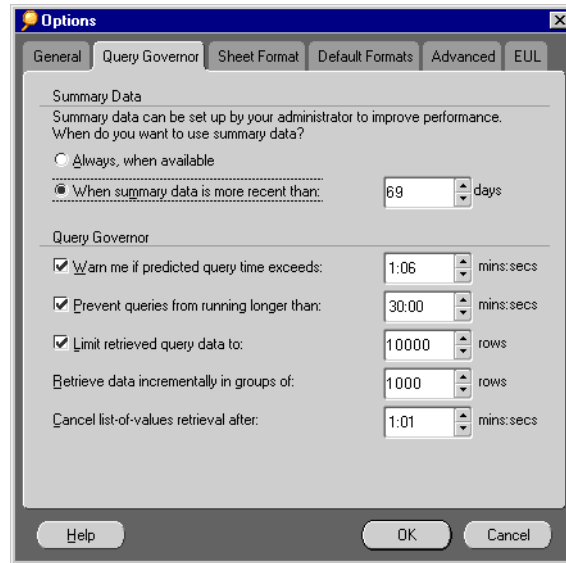
The Discoverer Administrator creates Summary Tables based on the type of data and the type of queries you use most often. Normally, Summary Tables are for the queries that take a long time to aggregate and display data. Other queries that require less time to aggregate and join data might not need Summary Tables. See your Discoverer Administrator if you want to use Summary Tables.

The **Query Governor** options help you set limits on the amount of time a query should take to complete. Use these options to limit the time you wait for Discoverer to run a query. The options set time and size limits on data as it is being retrieved from the database.

Note: Your Discoverer Administrator determines the upper limits for the **Query Governor** options. For example, your Discoverer Administrator may determine that queries cannot run longer than 30 minutes. If you set the limit for 60 minutes, the numbers will change back to 30 automatically.

To set Query Governor options:

1. From the menu, choose **Tools | Options**. The **Options** dialog appears. The tabs across the top of the dialog list the different option categories.
2. Click the **Query Governor** tab.



3. Select the options for Summary Data.

Always, when available—Select this option if time-sensitive data is not important to data analysis. Discoverer retrieves and displays saved data from the Summary Tables regardless of whether the data is current.

When summary data is more recent than—Select this option when time-sensitive data is necessary for worksheets. Click the up and down arrows to specify the number of days from the last data update. For example, if you're analyzing monthly data using Summary Tables, you want to make sure the data is less than thirty days old. If the Summary Tables' data has not been updated within the specified time, Discoverer does not use the Summary Tables to fulfill your query request. Instead Discoverer redirects your query request to the detail data and uses the latest data for the worksheet.

NOTE: Summary Data options can vary according to which Oracle database version you are using. If you are connected to an Oracle 8.1.6 database or later, these options relate to Materialized Views. See your Discoverer Administrator for more details.

4. Select the options for **Query Governor Data**.

Warn me if predicted query time exceeds—When requesting data for a worksheet, Discoverer estimates the time required to complete the query. Select this option if you want a message to warn that the query will take a long time to complete. The message appears only if the estimated completion time exceeds the period you specify, in MM:SS format, for this option.

Prevent queries from running longer than—Select this option to limit the time a query runs before it is cancelled. A warning message informs you if the query exceeds the set time, then Discoverer cancels the query. Normally, this option is selected if server performance is an issue because long running queries might affect server performance.

Limit retrieved query data to—This option sets the maximum number of rows to retrieve for a query. If the query returns more rows than the value you set here, a message informs you that not all data is retrieved and, consequently, the displayed data might not be complete.

Retrieve data incrementally in groups of—Set this option when the database contains large tables with many rows that might take a long time to retrieve. With this option selected, Discoverer retrieves rows of data in increments rather than all at the same time. The smaller the number of rows to retrieve as a group, the faster the initial retrieval. The default size of the data group is 250 rows, which equates to the first 10 pages of data at 25 rows per page. You can set the number of rows per page using the **Rows per Page** option on the Sheet Format tab.

Cancel list-of-values retrieval after—Some dialogs have a convenient drop-down list from which you can select a value for an option instead of manually typing the value. This is called a *list of values*. For example, when creating a condition for analyzing monthly sales data, you could either choose the value, July, from a list of months, or manually type the name “July” as part of the condition statement. But some large lists of values take a long time to retrieve from the database, such as a list of 20,000 part numbers. If you don’t want to wait for Discoverer to retrieve these larger lists of values, click the up and down arrows to set the maximum amount of time you would wait for this list to appear. This option does *not* cancel Discoverer’s retrieval of the actual data for a query. In the case of the part numbers, for example, all the data about the parts in stock, price per part, sales figures and so on, is displayed in the appropriate tables. Only the drop-down list of part numbers in various dialogs would not be available.

5. Click **OK**.

See also:

[Setting General Options](#)

[Setting Sheet Format Options](#)

[Setting Default Format Options](#)

[Setting Advanced Options](#)

[Setting EUL Options](#)

[Using SQL](#)

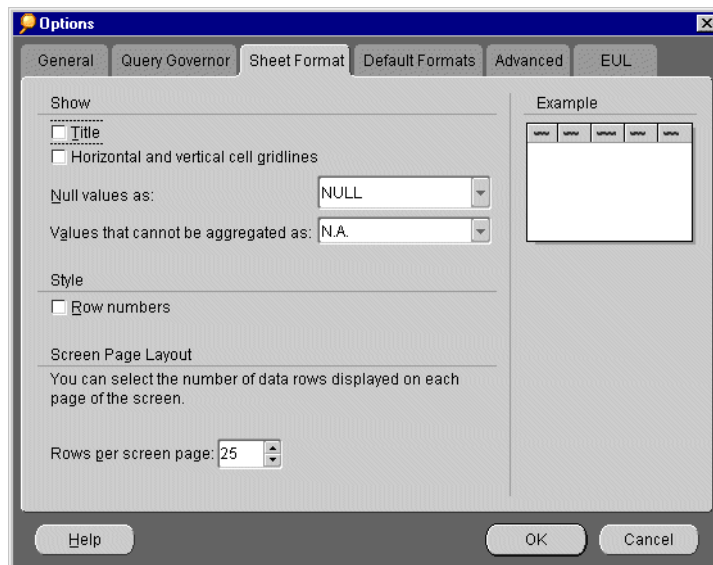
Setting Sheet Format Options

This tab in the **Options** dialog is for setting the display format of the table or crosstab.

NOTE: Changes to these settings affect the current sheet as well as any new sheets created later.

To set Sheet Format options:

1. From the menu, choose **Tools | Options**. The **Options** dialog appears.
2. Click the **Sheet Format** tab.



3. Select the options for the table or crosstab.

Title—Displays a title if one was created earlier.

Horizontal and Vertical Gridlines—Lines that separate rows and columns. The display example on the dialog shows a representation of your choices.

Null values as—A cell that contains a null value does not contain any data. Select the text to use to designate a null value from the drop-down list or type a value in the box.

CAUTION: If you select the 0 (zero) symbol as the null value, it may appear to the person looking at the table or crosstab that zero is the actual data. For example, in a cell specifying amount owed, zero means nothing is owed, whereas a null value in the same cell might mean that no information is available about the amount owed. Therefore, using the zero symbol to indicate null values might be misleading to others unless you explicitly state that 0 is equivalent to no data.

Values that cannot be aggregated as—Numbers that cannot be aggregated are formatted one of the values in the pull down list.

Row Numbers (Table only)—Sequential numbers of each row in the table, shown on the left side of the table.

Inline/Outline (Crosstabs only)—Arrangement of the side axis data items. As you select one of the options the example icon represents the arrangement.

Rows per screen page—The number of data rows on each page of the worksheet. Click the up and down arrow buttons to select the number.

4. Click **OK**.

See also:

[Setting Query Governor Options](#)

[Setting General Options](#)

[Setting Default Format Options](#)

[Setting Advanced Options](#)

[Setting EUL Options](#)

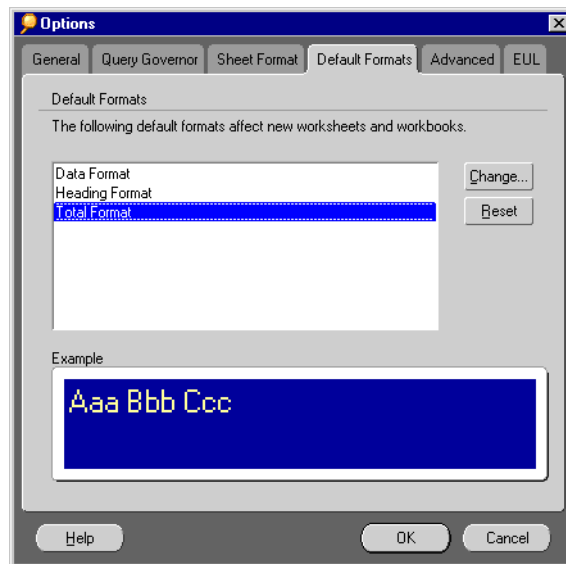
[Using SQL](#)

Setting Default Format Options

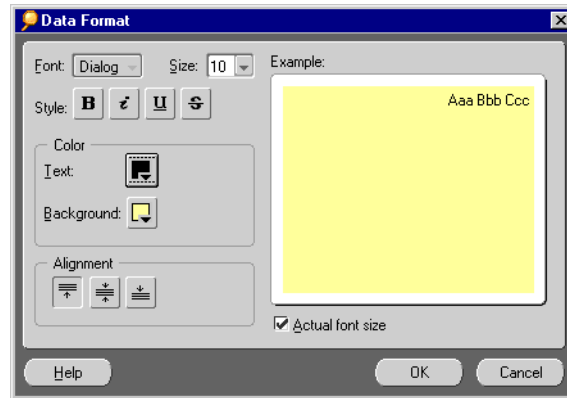
The Default Format options are for setting the font style, text color and background color of a worksheet's data, column headings, and totals.

To set Format options:

1. From the menu, choose **Tools | Options**. The **Options** dialog appears. The tabs across the top of the dialog list the different option categories.
2. Click the **Default Formats** tab.



3. To see a default format, select it in the list. The **Example** box shows an example of the format.
4. To change a default format, select from the list of formats.
5. Click the **Change** button. The **Data Format** dialog appears.



6. Select options on the **Data Format** dialog to set the default font style, alignment, text color, and background color for the selected format.

Size—Choose a size for the font from the drop-down list.

Style—Click a button to display the text in a **boldface**, *italic*, underline, or ~~strikethrough~~. Click the appropriate button to remove the style if it is already in effect.

Color—Click the button to apply a color to either the text or the background. A palette of colors appears. Click the one you want.

Alignment—Click an alignment option. The options display the data in the top, middle or bottom of the appropriate cell on the table or crosstab.

Actual font size—Select this option to display the data in the sample in the font size that you choose from the size drop-down list.

7. Click **OK**.

See also:

[Setting Query Governor Options](#)

[Setting Sheet Format Options](#)

[Setting General Options](#)

[Setting Advanced Options](#)

[Setting EUL Options](#)

[Using SQL](#)

Resetting the Default Formats

Sometimes, after changing several aspects of a format you want to change it back to the original Discoverer default settings. Instead of changing each format setting individually, you can click the **Reset** button.

1. In the **Format Options** dialog, select the default format to reset.

Resetting applies only to the selected format. Thus, you can reset one format but keep your changes made to the others.

2. Click the **Reset** button.
3. Click **OK**.

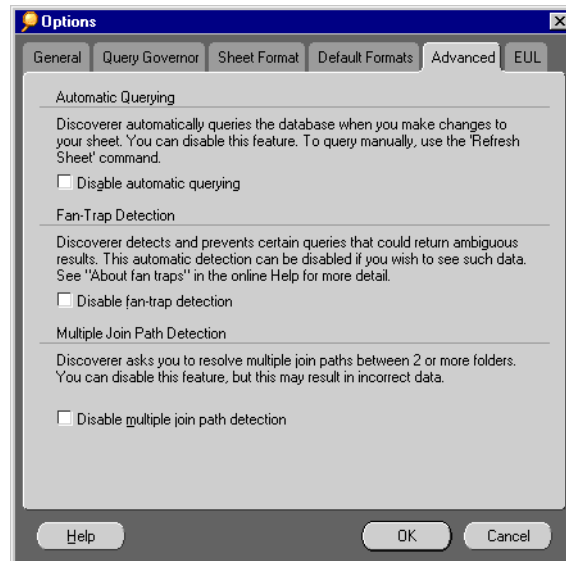
Setting Advanced Options

The Advanced options are for turning on/off automatic querying and for catching join errors that relate to database relationships.

CAUTION: Do not change these options without assistance from the Discoverer Administrator.

To set Advanced options:

1. From the menu, choose **Tools | Options**. The **Options** dialog appears. The tabs across the top of the dialog list the different option categories.
2. Click the **Advanced** tab.



3. Select the options.

Automatic Querying—When you make a change to a worksheet that affects the data results (as opposed to formatting changes), Discoverer automatically re-queries the database to display the appropriate results based on your changes. However, you can use this option to disable the automatic query feature in case you want to make changes

to the worksheet but not have Discoverer update the data. See “About Automatic Querying” on page 5-14 for more details.

Fan-Trap Detection—When this check box is NOT selected, Discoverer automatically detects and resolves fan trap and chasm trap queries into multiple SQL statements to obtain normal expected results. If you disable Fan Trap detection, this may result in these queries generating cartesian products, with potentially misleading results.

Select this check box if you want to prevent Discoverer from checking for fan traps. **We recommend that you DO NOT select this check box unless advised to do so by your Discoverer Administrator.** See “About Fan-Traps” on page 5-14 for more details.

Multiple Join Detection—Check this option to turn off Discoverer’s automatic detection and prevention of worksheet arrangements that have potential multiple join paths. See “About Multiple Join Paths” on page 5-16 for more details.

4. Click **OK**.

About Automatic Querying

While working with a worksheet, you can make changes that affect the data being displayed. For example, if you add a new data item or change a calculation that produces a data column, the displayed data may not reflect the change until Discoverer re-queries the database. With automatic querying, Discoverer automatically re-queries the database to get the updated data to display. In some cases, however, you may not want Discoverer to automatically re-query the database. For example, if you intend to make several changes that affect the data, then you don’t want Discoverer to re-query the database until you’re finished with the changes.

Using the **Advanced Options** dialog you can turn on and off the automatic re-querying feature. If it is turned off and you want Discoverer to re-query the database, choose **Sheet | Refresh Sheet** from the menu.

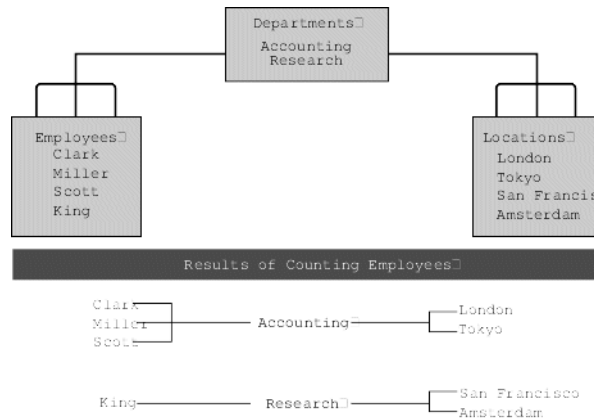
About Fan-Traps

A fan-trap occurs when the data items in two folders are not directly related (such as with a Customer ID), but do have a relationship based on the data items in a third folder.

As illustrated in Figure 5-1, the database contains three folders—Departments, Employees, and Locations. Each employee is associated with a single department because each employee works in only one department. The departments, however, are associated with multiple locations because departments can have offices in different cities. Consequently, because of the mutual association of employees and locations with the Departments folder, employees become unintentionally associated with multiple locations. This, of course, is

incorrect because employees can only be in one location. A query to count the number of employees at each location and department, for example, produces an incorrect result. The same employee is counted at multiple locations because the departments are at multiple locations. In the example below, the real number of employees is four, but the query produces a count of eight employees—Clark, Miller, and Scott are counted for both London and Tokyo, and King is counted for both San Francisco and Amsterdam.

Figure 5-1 Example Fan-Traps



As you're creating a new worksheet, Discoverer automatically detects and warns if the data items selected for the worksheet can possibly lead to a fan-trap. Note that Discoverer merely warns of a potential for a fan-trap and does not automatically prevent a fan-trap situation from occurring. Sometimes a Discoverer Administrator intentionally associates folders in a way that looks like a fan-trap. For example, the association of a single employee to multiple locations can be useful for counting the number of employees who might travel to a location.

Normally, however, fan-traps are not intentional in a database. If Discoverer warns of a fan-trap, please contact your Discoverer Administrator who can determine if the fan-trap association is intentional or if the database's organization needs to be modified.

Discoverer automatically detects fan-traps only if the **Disable Fan-Trap Detection** option is deselected in the **Options** dialog. If the option is not selected, Discoverer builds new worksheets without checking for, or warning about, potential fan-traps.

About Multiple Join Paths

When you create new worksheets, the data items in the worksheets are often stored in multiple folders in the database. Discoverer checks to make sure that these multiple folders have a clear, unambiguous relationship between them, and therefore, that the relationships among the data items is also clear and unambiguous.

For example, suppose a database contains two folders—one for information about sales orders and another for information about customers. Both folders contain the data item “Customer ID” because each sales order is for a customer specified by the Customer ID, and each customer is identified in the Customer folder by an ID number. In this case, if you run a query about sales order details and also want to see customer details, such as first and last name, Discoverer can clearly determine which customers are associated with each sale by relating the Customer ID to the sales details and customer details.

However, some databases organize information so the relationships between items in different folders is ambiguous. This means that data items can be associated with each other in multiple ways, which is a situation known as a “multiple join path.” As you are creating new worksheets, Discoverer can automatically detect and warn you if the potential for multiple join paths exists because, if it does, Discoverer might associate the items in a way you did not expect or intend. Thus, when you query the database, the results might not be what you intend either.

The warning that a multiple join path situation exists is not an error message; the warning merely advises you that the database contains relationships among data items that you might not know exist. If Discoverer detects and warns you of a multiple join path situation, please contact your Discoverer Administrator who can determine if the database’s organization needs to be modified.

Discoverer automatically detects multiple join paths only if the **Disable Multiple Join Path Detection** option is deselected on the **Options** dialog. If that option is not selected, Discoverer builds your new worksheets without checking for or warning you about multiple join paths.

See also:

[Setting Query Governor Options](#)

[Setting Sheet Format Options](#)

[Setting Default Format Options](#)

[Setting General Options](#)

[Setting EUL Options](#)

[Using SQL](#)

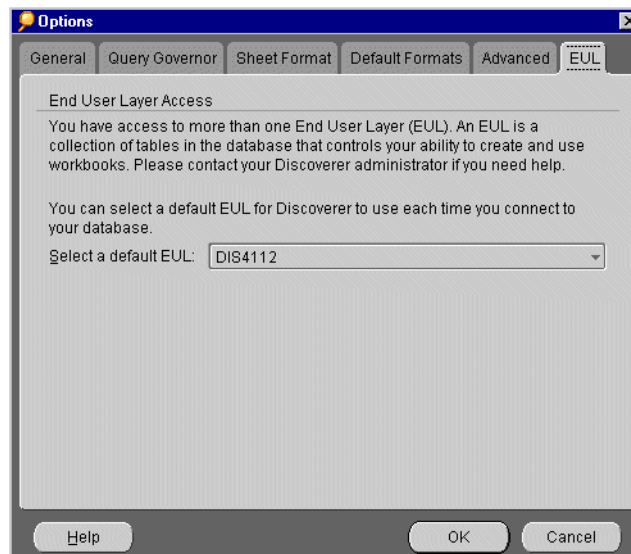
Setting EUL Options

One of the Discoverer Administrator's jobs is the creation of an End User Layer (EUL) that contains the data you need for work. Sometimes, the Discoverer Administrator designs several EULs that you can access. Use the EUL Options dialog to select the default EUL for Discoverer to use when you connect to the database.

To set EUL options:

1. From the menu, choose **Tools | Options**. The **Options** dialog appears. The tabs across the top of the dialog list the different option categories.
2. Click the **EUL** tab.
3. Click the drop arrow to see a list of the EULs to which you have access.
4. In the list, click the one you want. Check with your Discoverer Administrator for the proper EUL to select.

You will need to reconnect to Discoverer to use the new EUL.



5. Click **OK**.

See also:

[Setting Query Governor Options](#)

[Setting Sheet Format Options](#)

[Setting Default Format Options](#)

[Setting Advanced Options](#)

[Setting General Options](#)

[Using SQL](#)

Using SQL

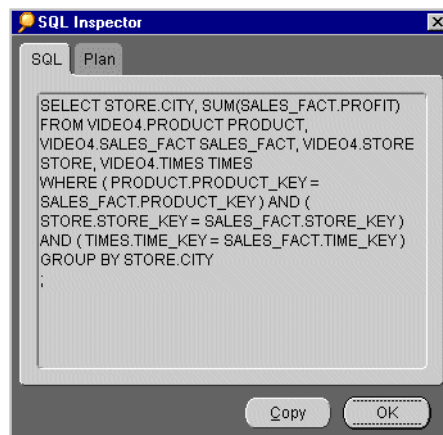
If you are familiar with SQL, you can analyze the SQL statements that Discoverer executes against the database.

Looking at the SQL Statements for Worksheets

To see a worksheet's SQL statements:

1. Choose **Sheet | Show SQL**.

The **SQL Inspector** dialog box appears. It shows the SQL statements used to create your current worksheet.



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.

3. Click **OK** to close the SQL Inspector dialog box.

Using the Discoverer Execution Plan

The **Plan** tab displays the Execution Plan chosen by the Oracle Server for the query request. The Execution Plan defines the sequence of operations that the Oracle Server performs to execute the SQL statement.

You can look at an Execution Plan to see how a SQL statement is being executed. For example, when using Summaries, you may wish to check that a query is using a Summary or Materialized View created by your Discoverer Administrator.

About Summaries

A Summary Folder is how Discoverer represents an underlying Summary table or Materialized view.

Summaries are created by your Discoverer Administrator to improve the performance of Discoverer, to help do your work more quickly and efficiently.

Both Summary tables and Materialized Views precompute and store aggregated data.

- A **Summary** table is a table that Discoverer creates.
- A **Materialized View** is the Oracle 8.1.6+ server's own summary mechanism.

NOTE: For more information on Summaries and Materialized Views, see **Oracle8i Data Warehousing Guide Release 2 (8.1.6)** (Part Number A76994-01).

A Summary Folder contains one or more Items (i.e. columns from a Summary table or Materialized View). You can combine items in a Summary folder into Summary Combinations. From a Summary Combination, Discoverer creates one of the following depending on the version of the database:

- a Summary Table (if using a pre-Oracle 8.1.6 database).
- a Materialized View (if using an Oracle 8.1.6+ database).

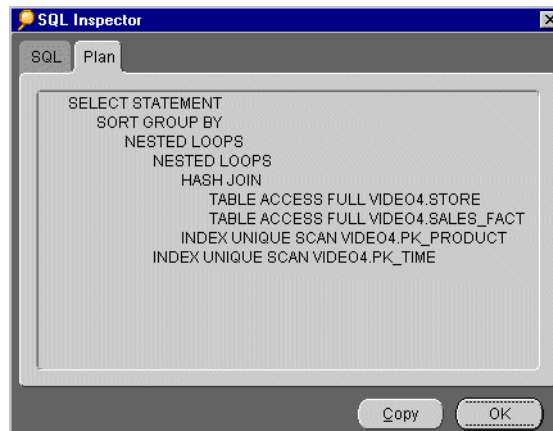
Looking at an SQL Execution Plan

To see a worksheet's Execution Plan:

1. Choose **Sheet | Show SQL**.

The SQL Inspector dialog appears.

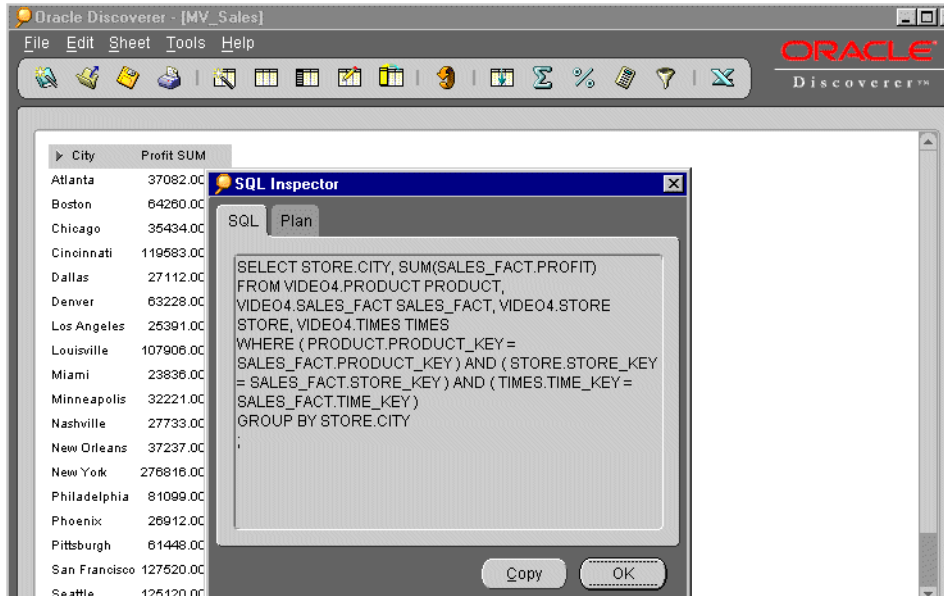
2. Click the **Plan** tab.



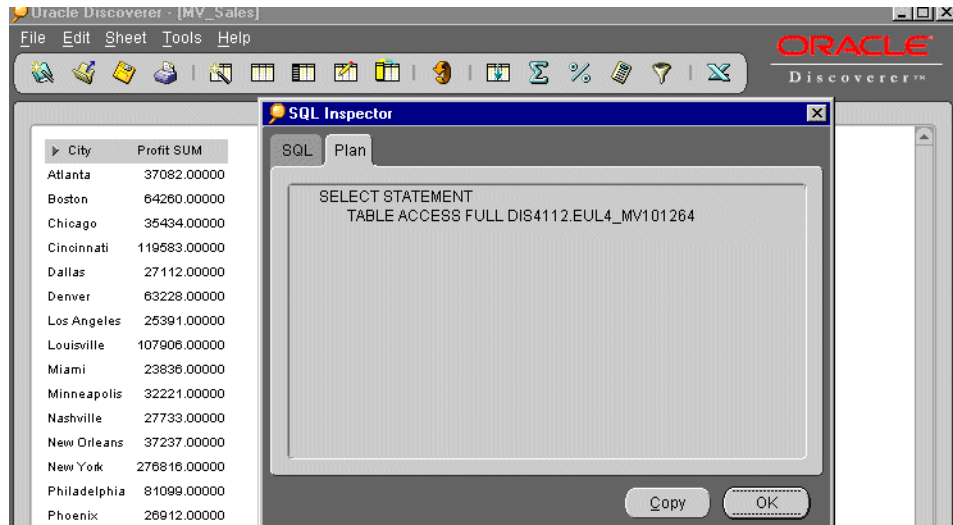
Viewing the SQL and Execution Plan with an 8.1.6+ database

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 **Execution Plan** tab in the **SQL Inspector** dialog to see the SQL statement that Discoverer sends to the server.



In the screenshot above, the worksheet contains the Items: **City** and **Profit SUM**. Although the Discoverer Administrator has created a Summary for these items, 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.



In the screenshot above, 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 EUL4_MV101264.

NOTE: Materialized View names are prefixed with MV.

Calculation Examples

This appendix contains the following sections:

- Simple Calculation Examples
- Analytic Function Examples
- More about the Analytic Function Template
- Analytic Functions and Sequencing

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

About the examples in this chapter

The examples in the following sections use the **Video Stores Tutorial**.

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.

Simple Calculation Examples

This section provides the following examples to help you create Calculations.

- Calculate the number of rows returned by a query
- Calculate a 25% increase in sales
- Convert text to upper-case

NOTE: For more information on how to create Calculations, refer to “Creating and Editing Calculations”.

Calculate the number of rows returned by a query

This example calculates the number of rows returned by a query.

Table 5-1 Workbook configuration for 'Calculate the number of rows returned by a query'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM																																			
Sort Order	Year, Region, City																																			
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central																																			
Calculation Name	Rows returned																																			
Calculation	ROWCOUNT																																			
Notes	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 One record , (Calculation = '1'). Then, create a Calculation Rows returned to count the occurrences of One record , (SUM(Video Sales Analysis.One record))																																			
Display Data	<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																																

Calculate a 25% increase in sales

This example calculates a 25% increase in sales figures.

Table 5-2 Workbook configuration for 'Calculate a 25% increase in profits'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region, City
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central
Calculation Name	25% Increase
Calculation	Sales SUM * 1.25

Display Data	<table><thead><tr><th>Year</th><th>Region</th><th>City</th><th>Sales SUM</th><th>25% Increase</th></tr></thead><tbody><tr><td>2000</td><td>Central</td><td>Chicago</td><td>\$10,116</td><td>\$12,645</td></tr><tr><td></td><td></td><td>St. Louis</td><td>\$22,041</td><td>\$27,551</td></tr><tr><td></td><td></td><td>Nashville</td><td>\$8,345</td><td>\$10,431</td></tr><tr><td></td><td></td><td>Louisville</td><td>\$35,896</td><td>\$44,870</td></tr><tr><td></td><td></td><td>Minneapolis</td><td>\$9,820</td><td>\$12,275</td></tr><tr><td></td><td></td><td>Dallas</td><td>\$7,749</td><td>\$9,686</td></tr><tr><td></td><td></td><td>Cincinnati</td><td>\$45,758</td><td>\$57,198</td></tr></tbody></table>	Year	Region	City	Sales SUM	25% Increase	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
Year	Region	City	Sales SUM	25% Increase																																					
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																																					

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 5-3 Workbook configuration for 'Convert City text to upper-case'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central

Calculation Name **City(Upper Case)**

Calculation UPPER(City)

Display Data

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

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:

- Analytic Function Categories
- Calculations and Drilling Into and out of data
- About The Analytic Function Template
- About the examples in this chapter
- Ranking Function Examples
- Banding Function Examples
- Windowing Function Examples
- Reporting Function Examples
- Lag/Lead Function Examples
- Statistical Function Examples
- More about the Analytic Function Template
- Analytic Functions and Sequencing

Analytic Function Categories

Analytic Functions are classified in the following categories:

- **Ranking** - Address business questions like: ‘What are the top 10 and bottom 10 sales-people 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.

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.

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 templates 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”.

Ranking Function Examples

About Ranking

Ranking functions compute the rank of an item with respect to other items in an ordered list.

Assign Ranks to sales figures

This example ranks a set of sales figures.

Table 5-4 Workbook configuration for 'Assign Ranks to sales figures'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM																																			
Sort Order	Year, Region																																			
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000 AND Region = Central																																			
Calculation Name	Rank																																			
Calculation	RANK() OVER(ORDER BY Sales SUM DESC)																																			
Notes	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.																																			
Display Data	<table border="1"> <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																																

Assign Ranks to sales figures within Region

This example ranks a set of sales figures within each Region for each Year.

Table 5-5 Workbook configuration for ‘Assign Ranks to sales figures within Region’

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000
Calculation Name	Rank Top
Calculation	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	\$83,602	1
		Washington	\$35,516	2
		Philadelphia	\$25,054	3
		Pittsburgh	\$22,683	4
		Atlanta	\$21,082	5
		Boston	\$19,410	6

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 5-6 Workbook configuration for 'Show the top three selling Cities per Region'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000 Rank Top <= 3
Calculation Name	Rank Top
Calculation	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.

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

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 5-7 Workbook configuration for ‘Show the top and bottom three selling Cities per Region’

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000 Rank Top <= 3 OR Rank Bottom <= 3
Calculation Name	Rank Top
Calculation	RANK() OVER(PARTITION BY Year, Region ORDER BY Sales SUM DESC)
Additional Calculations Required	Rank Bottom = RANK() OVER(PARTITION BY Year, Region ORDER BY Sales SUM ASC)
Notes	<p>This analysis involves three steps:</p> <ol style="list-style-type: none"> 1 - Assign ranks to Cities on Sales SUM in descending order, as <i>Rank Top</i>. 2 - Assign ranks to Cities on Sales SUM in ascending order, as <i>Rank Bottom</i>. 3 - Displaying only <i>Rank Top</i>, filter the data using a Condition to return only the top three and bottom three ranked Brands. <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. 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 5-7 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
	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		

Banding Function Examples

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.

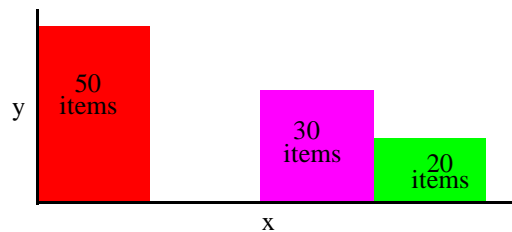
Two common types of banding are:

- *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.

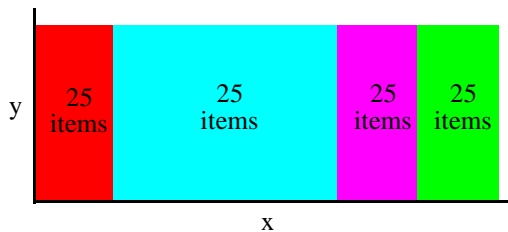
Figure 5-2 Banding By Value



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.

Figure 5-3 Banding By Rank



Use the **NTILE** function to produce equi-height bands based on *rank*.

Producing equi-width Bands (1)

This example divides Sales figures into bands according to their *value*, (also known as equi-width bands).

Table 5-8 Workbook configuration for ‘Producing equi-width Bands (1)’

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM																																			
Sort Order	Year, Region																																			
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central																																			
Calculation Name	Sales Bands																																			
Calculation	GREATEST(1,4-FLOOR((Sales SUM-Min Sales for Region)/GREATEST(1,FLOOR((Max Sales for Region-Min Sales for Region+1)/4))))																																			
Additional Calculations Required	Max Sales for Region = MAX(Sales SUM) OVER(PARTITION BY Region,Year) Min Sales for Region = MIN(Sales SUM) OVER(PARTITION BY Region,Year)																																			
Notes	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"> • Band 1 - 36,255.75 to 45,758 • Band 2 - 26,753.5 to 36,255.75 • Band 3 - 17,251.25 to 26,753.5 • Band 4 - 7,749 to 17,251.25 <p>Each value is placed in one of the four Bands depending on which range the Sales SUM value falls into.</p>																																			
Display Data	<table border="1"> <thead> <tr> <th>Year</th> <th>Region</th> <th>City</th> <th>Sales SUM</th> <th>Sales Bands</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>Minneapolis</td> <td>\$9,820</td> <td>4</td> </tr> <tr> <td></td> <td></td> <td>Nashville</td> <td>\$8,345</td> <td>4</td> </tr> <tr> <td></td> <td></td> <td>Dallas</td> <td>\$7,749</td> <td>4</td> </tr> </tbody> </table>	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
Year	Region	City	Sales SUM	Sales Bands																																
2000	Central	Cincinnati	\$45,758	1																																
		Louisville	\$35,896	2																																
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		Minneapolis	\$9,820	4																																
		Nashville	\$8,345	4																																
		Dallas	\$7,749	4																																

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)”).

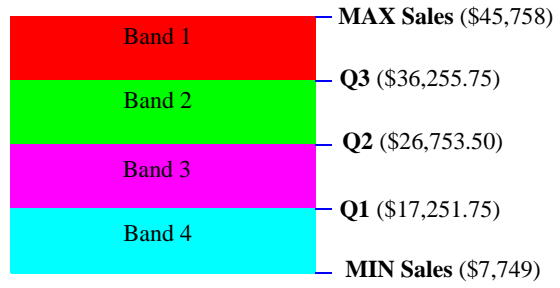
Table 5-9 Workbook configuration for ‘Producing equi-width Bands (2)’

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central
Calculation Name	Sales Bands 2
Calculation	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
Additional Calculations Required	MAX Sales = MAX(Sales SUM) OVER(PARTITION BY Year) MIN Sales = MIN(Sales SUM) OVER(PARTITION BY Year) Range = (MAX Sales - MIN Sales)/4 Q1 = MIN Sales + Range Q2 = MIN Sales + (Range*2) Q3 = MAX Sales - Range

Table 5-9 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

Producing equi-height Bands

This example assigns a set of sales figures into two equi-height Bands.

Table 5-10 Workbook configuration for 'Producing equi-height Bands'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM																																			
Sort Order	Year, Region																																			
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central																																			
Calculation Name	Sales Bands 3																																			
Calculation	NTILE(2) OVER(PARTITION BY Year, Region ORDER BY Sales SUM DESC)																																			
Notes	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	<table border="1"> <thead> <tr> <th>Year</th> <th>Region</th> <th>City</th> <th>Sales SUM</th> <th>Sales Bands 3</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>1</td> </tr> <tr> <td></td> <td></td> <td>St. Louis</td> <td>\$22,041</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td>Minneapolis</td> <td>\$9,820</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td>Nashville</td> <td>\$8,345</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td>Dallas</td> <td>\$7,749</td> <td>2</td> </tr> </tbody> </table>	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
Year	Region	City	Sales SUM	Sales Bands 3																																
2000	Central	Cincinnati	\$45,758	1																																
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		St. Louis	\$22,041	1																																
		Minneapolis	\$9,820	2																																
		Nashville	\$8,345	2																																
		Dallas	\$7,749	2																																

Windowing Function Examples

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 right, 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 above, 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

Calculate a three month moving sales average

This example uses a logical window to calculate a moving three month Sales average.

Table 5-11 Workbook configuration for 'Calculate a three month moving Sales average'

Select Items	Video Analysis Information: Year (Calendar Date Year), Month (Calendar Date Month), Sales SUM																												
Sort Order	Year, Month																												
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central																												
Calculation Name	Moving Avg																												
Calculation	AVG(Sales SUM) OVER(ORDER BY "Month" RANGE INTERVAL '2' MONTH PRECEDING)																												
Notes	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	<table border="1"> <thead> <tr> <th>Year</th> <th>Month</th> <th>Sales SUM</th> <th>Moving Average</th> </tr> </thead> <tbody> <tr> <td>2000</td> <td>Jan</td> <td>\$26,575</td> <td>\$26,575</td> </tr> <tr> <td></td> <td>Feb</td> <td>\$21,319</td> <td>\$23,947</td> </tr> <tr> <td></td> <td>Mar</td> <td>\$17,308</td> <td>\$21,734</td> </tr> <tr> <td></td> <td>Apr</td> <td>\$34,859</td> <td>\$24,495</td> </tr> <tr> <td></td> <td>May</td> <td>\$21,280</td> <td>\$24,482</td> </tr> <tr> <td></td> <td>Jun</td> <td>\$18,384</td> <td>\$24,841</td> </tr> </tbody> </table>	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
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																										

Show the cumulative values of sales

This example uses a physical window to calculate the cumulative value of sales.

Table 5-12 Workbook configuration for 'Show the cumulative value of sales'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central
Calculation Name	Cumulative Total
Calculation	SUM(Sales SUM) OVER(ORDER BY Year ROWS UNBOUNDED PRECEDING)

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

Reporting Function Examples

About Reporting Functions

Reporting functions are used to compute aggregates.

Calculate annual sales by Year

This example calculates annual sales by Year.

Table 5-13 Workbook configuration for 'Calculate annual sales by Year'

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000
Calculation Name	Annual Sales
Calculation	SUM(Sales SUM) OVER()
Display Data	

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

Calculate annual sales by region

This example calculates the total annual sales by Year and Region.

Table 5-14 Workbook configuration for ‘Calculate annual sales by region’

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000
Calculation Name	Annual Sales by Region
Calculation	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	\$36,486	\$107,213

Calculate percentage of annual sales by Region

This example calculates the percentage of annual sales per Region for each City in each Year.

Table 5-15 Workbook configuration for ‘Calculate percentage of annual sales’

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region, % of Annual Sales

Table 5-15 Workbook configuration for ‘Calculate percentage of annual sales’

Conditions	Department = Video Sale OR Department = Video Rental Year = 2000				
Calculation Name	% of Annual Sales				
Calculation	Sales SUM*100/Annual Sales by Region				
Additional Calculations Required	Annual Sales by Region = SUM(Sales SUM) OVER(PARTITION BY Year, Region ORDER BY Year, Region)				
Display Data	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	\$107,213	8.34

Calculate sales as a percentage of total Sales

This example calculates sales as a percentage of total Sales.

Table 5-16 Workbook configuration for ‘Calculate sales as a percentage of total profit’

Select Items	Video Analysis Information: Year (Calendar Date Year), Region, City, Sales SUM
Sort Order	Year, Region, % of Annual Sales
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000, Region = Central
Calculation Name	% of total Sales
Calculation	RATIO_TO_REPORT(Sales SUM) OVER()*100

Table 5-16 Workbook configuration for 'Calculate sales as a percentage of total profit'

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

Lag/Lead Function Examples

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.

Compare sales figures across time

This example compares sales figures across time.

Table 5-17 Workbook configuration for 'Compare sales figures across time'

Select Items	Video Analysis Information: Year (Calendar Date Year), Sales SUM									
Sort Order	Year									
Conditions	Department = Video Sale OR Department = Video Rental Region = Central									
Calculation Name	Previous Year									
Calculation	LAG(Sales SUM,1) OVER(ORDER BY Year)									
Notes	Because there are no comparative figures for 1998, the Previous Year value for 1998 is blank.									
Display Data	<table border="1"> <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> </table>	1998	\$618,482		1999	\$739,838	\$618,482	2000	\$472,902	\$739,838
1998	\$618,482									
1999	\$739,838	\$618,482								
2000	\$472,902	\$739,838								

Calculate sales growth across time

Using the comparative sales figures from example **Compare sales figures across time**, this example calculates the sales growth across time.

Table 5-18 Workbook configuration for 'Calculate sales growth across time'

Select Items	Video Analysis Information: Year (Calendar Date Year), Sales SUM																
Sort Order	Year																
Conditions	Department = Video Sale OR Department = Video Rental Region = Central																
Calculation Name	Growth																
Calculation	(Sales SUM-Previous Year)*100/Previous Year																
Additional Calculations Required	Previous Year = LAG(Sales SUM,1) OVER(ORDER BY 'Year')																
Notes	Because there are no comparative figures for 1998, the Previous Year value for 1998 is blank.																
Display Data	<table border="1"> <thead> <tr> <th>Year</th> <th>Sales SUM</th> <th>Previous Year</th> <th>Growth</th> </tr> </thead> <tbody> <tr> <td>1998</td> <td>\$618,482</td> <td></td> <td></td> </tr> <tr> <td>1999</td> <td>\$739,838</td> <td>\$618,482</td> <td>19.62</td> </tr> <tr> <td>2000</td> <td>\$472,902</td> <td>\$739,838</td> <td>-36.08</td> </tr> </tbody> </table>	Year	Sales SUM	Previous Year	Growth	1998	\$618,482			1999	\$739,838	\$618,482	19.62	2000	\$472,902	\$739,838	-36.08
Year	Sales SUM	Previous Year	Growth														
1998	\$618,482																
1999	\$739,838	\$618,482	19.62														
2000	\$472,902	\$739,838	-36.08														

Rank sales growth

Using the comparative sales figures from examples **Compare sales figures across time** and **Calculate sales growth across time**, this example ranks sales growth by year.

Table 5-19 Workbook configuration for 'Rank sales growth'

Select Items	Video Analysis Information: Year (Calendar Date Year), Sales SUM																				
Sort Order	Year																				
Conditions	Department = Video Sale OR Department = Video Rental Region = Central																				
Calculation Name	Rank Growth																				
Calculation	RANK() OVER(PARTITION BY Year ORDER BY Growth DESC)																				
Additional Calculations Required	Previous Year = LAG(Sales SUM,1) OVER(ORDER BY Year) Growth = (Sales SUM-Previous Year)*100/Previous Year																				
Notes	Because there are no comparative figures for 1998, the Previous Year and Growth values for 1998 is blank and the Rank Growth is calculated as '1'.																				
Display Data	<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																	

Statistical Function Examples

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.

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 5-20 Workbook configuration for 'Calculate sales as a percentage of total profit'

Select Items	Video Analysis Information: Year (Calendar Date Year), Month (Calendar Date Month), Sales SUM, Profit SUM
Sort Order	Year
Conditions	Department = Video Sale OR Department = Video Rental Year = 2000
Calculations	<p>Slope = REGR_SLOPE(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)</p> <p>Intercept = REGR_INTERCEPT(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)</p> <p>Coefficient = REGR_R2(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)</p> <p>Count = REGR_COUNT(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)</p> <p>Average = REGR_AVGX(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)</p> <p>Average 2 = REGR_AVGY(Profit SUM,Sales SUM) OVER(ORDER BY Profit SUM)</p>

Table 5-20 Workbook configuration for 'Calculate sales as a percentage of total profit'

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	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

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.

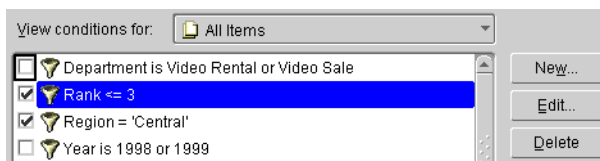
- **OVER** - indicates that the function operates on a query result set, after the other query clauses have been applied, (such as **FROM**, **WHERE**, **HAVING** etc.
- **PARTITION BY** - partition (or group) the query results set. E.g. **PARTITION BY 'Region'**.
- **ORDER BY** - specify how the results set is logically ordered. E.g. **ORDER BY 'Sales SUM'**.

For more information about Oracle expressions, refer to “Getting More Information”.

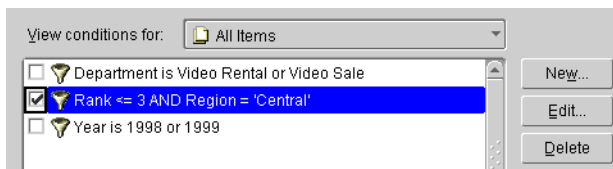
Analytic Functions and Sequencing

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

Oracle Applications Support

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).

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 your Discoverer Administrator for details).
- An Oracle Applications version supported by Discoverer. Supported version are:
 - Release 10.7 (SmartClient and Character mode)
 - Release 11
 - Release 11.5

Connect dialog settings for Oracle Applications Users

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 5-4).

If Discoverer is not configured to use Oracle Applications EULs, contact your Discoverer Administrator.

Figure 5-4 An Oracle Discoverer Connect dialog for Applications Users or standard EUL Users



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).

Connecting to Discoverer as an Oracle Applications User

Once Discoverer is configured to use Oracle Applications EULs, (see Appendix , “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 Administrator.



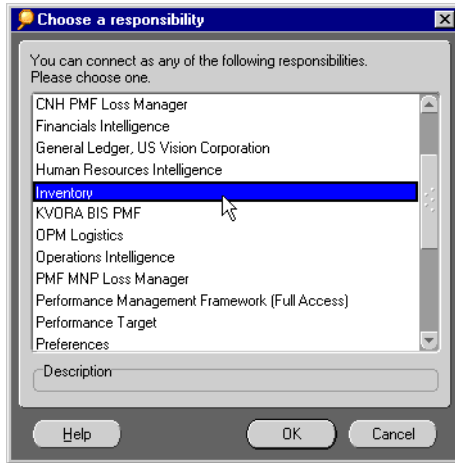
2. If the **Oracle Applications User** check box is displayed beneath the Connect box, make sure that you select the **Oracle Applications User** check box.

NOTE: The Oracle Applications User check box appears beneath the Connect box when Discoverer is configured to use both standard EULs and Oracle Applications EULs, (contact your Discoverer Administrator for more information).

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 the one assigned to you by your Oracle Administrator.

Connect dialog settings for Oracle Applications Users



4. Choose the Oracle Applications responsibility assigned to you by your Discoverer Administrator, then click **OK**.

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 the Administration Edition. 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 the Administration Edition. 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 the Administration Edition. 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 workbooks. 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 element.

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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