

Oracle® Discoverer Administrator

Administration Guide

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Send Us Your Comments

Oracle Discoverer Administrator Administration Guide, 10g (9.0.4)

Part No. B10270-01

Oracle Corporation welcomes your comments and suggestions on the quality and usefulness of this document. Your input is an important part of the information used for revision.

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Preface

Welcome to Oracle Discoverer Administrator - the tool for setting up and maintaining Discoverer systems.

Discoverer Administrator enables you to control and manage your Discoverer system so that users of Discoverer Plus and Discoverer Viewer can find the information they want.

Oracle Discoverer Navigation and Accessibility

Keyboard Navigation

Oracle Discoverer supports standard keyboard navigation. Standard keyboard navigation includes the use of the tab key, mnemonics (using the Alt key and the underlined character), and accelerators (such as Alt+F4 to exit a window).

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Intended Audience

Use this guide if you are responsible for managing a Discoverer system, and you want to know how to:

- create and maintain End User Layers
- set up business areas, folders and items
- help users find information by defining joins, calculated items, and conditions
- improve Discoverer performance using summary folders

Structure

This manual contains the following chapters:

- Part I Conceptual and task information
 - ["Introducing Oracle Discoverer Administrator"](#)
 - ["Getting started with Discoverer Administrator"](#)
 - ["Creating and maintaining End User Layers"](#)
 - ["Creating and maintaining business areas"](#)
 - ["Creating and maintaining folders"](#)
 - ["Controlling access to information"](#)
 - ["Scheduling workbooks"](#)
 - ["Maintaining items and item classes"](#)
 - ["Creating and maintaining joins"](#)

- "Creating and maintaining calculated items"
- "Creating and maintaining conditions"
- "Creating and maintaining hierarchies"
- "Managing summary folders"
- "Creating summary folders manually"
- "Additional information about summary folders"
- "Using Discoverer with Oracle Applications"
- "Using Discoverer with components of Oracle Application Server"
- "EUL status workbooks"
- "Predicting query performance"
- "Oracle Discoverer command line interface"
- "Discoverer registry settings"
- "Discoverer support for non-Oracle databases and Oracle Rdb"
- "Upgrading from earlier versions of Discoverer"
- Part II Reference information
 - "Reference dialogs"
 - "Using SQL files and trace files"

Related Documents

For more information, see the following manuals:

- *Oracle Application Server Discoverer Plus User's Guide*
- *Oracle Application Server Discoverer Plus Tutorial*
- *Oracle Discoverer Administrator Tutorial*
- *Oracle Application Server Discoverer Configuration Guide*
- *Oracle9i Database Error Messages*
- *Oracle Discoverer Administrator error messages*
- *Oracle9i SQL Reference Guide*

Conventions

The following conventions are used in this manual:

Convention	Meaning
File New	Menu options are shown with a vertical bar separating the menu and the name of the option. For example, File New shows the selection of the New option from the File menu.
bold type	Bold type is used to distinguish field names in Discoverer dialogs.
<i>italic type</i>	Italic type is used for the names of other Oracle publications.
< >	Angle brackets enclose user-supplied names.
[]	Brackets enclose optional clauses from which you can choose one or none.
monotype	Characters you type are shown in monotype.

Discoverer often gives you several ways to perform an operation. For example, to create a new condition you could:

- choose Tools | Conditions
- click the Conditions toolbar button

Since you might not be using a mouse, the Discoverer documentation always tells you the menu and menu option to choose.

Part I

Conceptual and task information

This section contains conceptual and task information about Oracle Discoverer Administrator.

Introducing Oracle Discoverer Administrator

Introducing Oracle Discoverer Administrator

This chapter introduces you to Oracle Discoverer Administrator, and includes the following topics:

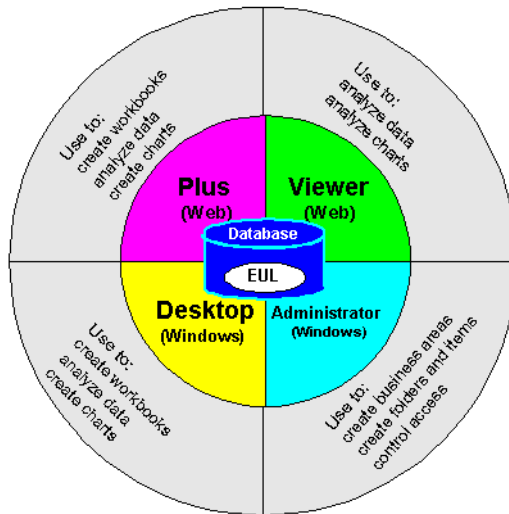
- "What is Oracle Discoverer?"
- "What is Oracle Discoverer Administrator?"
- "What is your role as a Discoverer manager?"
- "Basic concepts for Discoverer managers"
- "What are the steps to a successful Discoverer implementation?"
- "What is involved in maintaining a Discoverer system?"
- "What are the new features in Discoverer Administrator Version 9.0.4?"

What is Oracle Discoverer?

Oracle Discoverer is a business intelligence toolset that comprises:

- Oracle Discoverer Administrator
- OracleAS Discoverer Plus
- OracleAS Discoverer Viewer
- Oracle Discoverer Desktop

Figure 1–1 The Discoverer components



All of the Discoverer tools rely on the Discoverer End User Layer (EUL). The EUL is a set of database tables that contain information (or 'metadata') about the other tables and views in the database.

What is Oracle Discoverer Administrator?

Oracle Discoverer Administrator is one of the components of Oracle Discoverer. Discoverer Administrator is a tool to hide the complexity of the database from business users, so they can answer business questions quickly and accurately using Oracle Discoverer.

Discoverer Administrator's wizard-style interfaces enable you to:

- set up and maintain the End User Layer (EUL)
- control access to information
- create conditions and calculations for Discoverer end users to include in their worksheets

Users of Discoverer Administrator are called Discoverer managers.

Oracle Discoverer Administrator is shipped as part of Oracle Developer Suite, which is a complete suite of application development and administration tools.

What is your role as a Discoverer manager?

As a Discoverer manager, you are responsible for:

- the initial implementation of the Discoverer system
- the ongoing administration and maintenance of the Discoverer system

To fulfill your role as a Discoverer manager, you need to understand how to design business areas that support your company's decision-makers. On the database side, you need to know what data is in the database, where it is located, how it is stored, and how it relates to other data. On the business side, you need to know what data the decision-makers require, what kinds of analysis is necessary, and how the final results should be presented for easy comprehension.

Basic concepts for Discoverer managers

Before you start using Discoverer Administrator, you will find it helpful to familiarize yourself with some basic concepts:

- ["What is business intelligence?"](#)
- ["What are relational databases, OLTP systems, and data warehouses?"](#)
- ["What are the fundamental concepts behind a Discoverer system?"](#)
- ["How does Discoverer work?"](#)

What is business intelligence?

Business intelligence is the ability to analyze data to answer business questions and predict future trends.

Oracle Discoverer is a great business intelligence tool because it enables users to analyze data in an ad hoc way. Instead of relying on IT specialists to pre-define queries and reports, Discoverer users can choose the data to analyze and can continue manipulating results until they have the necessary information to take business decisions. Oracle Discoverer also enables users to share the results of their data analysis with their colleagues in different formats (including charts and Excel spreadsheets).

What are relational databases, OLTP systems, and data warehouses?

A relational database stores data in tables that are composed of rows and columns that contain data values. The overall structure of a relational database management

system (RDBMS) can be set up in any number of ways, depending on how the system will be used.

A typical RDBMS is designed for online transaction processing (OLTP), with the main objective of storing vast quantities of transaction data as efficiently as possible. OLTP system design is primarily concerned with getting data into an RDBMS. An OLTP system contains the information that a business uses on a day-to-day basis. The information in an RDBMS designed for an OLTP system is typically process-oriented, current, and subject to change.

A data warehouse is an RDBMS with a structure designed to facilitate data analysis, rather than simply efficient storage of information. Data warehouse design is primarily concerned with getting data out of an RDBMS. The information in a data warehouse is typically subject-oriented, historical, and static.

Oracle Discoverer provides business users with data analysis capabilities, regardless of whether the RDBMS was designed for an OLTP system or as a data warehouse.

What are the fundamental concepts behind a Discoverer system?

Before you design and implement a Discoverer system, you need to become familiar with some fundamental Discoverer concepts.

These fundamental concepts are described briefly in the sections below:

- ["Introducing the End User Layer"](#)
- ["Introducing business areas"](#)
- ["Introducing folders and items"](#)
- ["Introducing workbooks and worksheets"](#)
- ["Introducing hierarchies and drills"](#)
- ["Introducing summary folders"](#)

Each of the above sections is only a brief description, but includes a cross-reference to other chapters in this manual where you can find more information.

Introducing the End User Layer

The End User Layer (EUL) insulates Discoverer end users from the complexity and physical structure of the database. The EUL provides an intuitive, business-focused view of the database that you can tailor to suit each Discoverer end user or user group. The EUL enables Discoverer end users to focus on business issues instead of

data access issues. It helps Discoverer end users produce queries by generating SQL and provides a rich set of default settings to aid report building.

The metalayer structure of the EUL preserves the data integrity of the database. Whatever the Discoverer manager or the Discoverer end user does with Discoverer, it affects only the metadata in the EUL and not the database.

The EUL is a collection of approximately 50 tables in the database. These are the only tables that can be modified through Discoverer Administrator. Business areas are defined in Discoverer Administrator using the EUL database tables. Discoverer provides read-only access to the application database.

For more information about the EUL, see [Chapter 3, "Creating and maintaining End User Layers"](#).

Introducing business areas

Typically, no single user (or group of users) is interested in all the information in the database. The users are much more likely to be interested in a subset of the information that is connected in some way to the job that they do. Using Discoverer Administrator, you create one or more business areas as containers of related information.

Having created a business area, you load the database tables containing the related information into that business area.

For more information about business areas, see [Chapter 4, "Creating and maintaining business areas"](#).

Introducing folders and items

The tables and views you load into a business area are presented to Discoverer end users as folders. The columns within a table or view are presented as items.

Often the database tables and columns have names that users will not find meaningful. Using Discoverer Administrator, you can make the names of folders and items more helpful than the names of the tables and columns on which they are based.

The folders in a business area do not have to be based directly on database tables or views. You can create complex folders that contain items based on columns from multiple tables or views. You can also create custom folders based on SQL statements you write yourself.

Similarly, the items in a business area do not have to be based directly on columns. You can create calculated items that perform calculations on several columns, or that make use of the analytic functions available within the Oracle database.

For more information about folders and items, see:

- [Chapter 5, "Creating and maintaining folders"](#)
- [Chapter 8, "Maintaining items and item classes"](#)
- [Chapter 10, "Creating and maintaining calculated items"](#)

Introducing workbooks and worksheets

Oracle Discoverer end users analyze information by including items in worksheets and using Discoverer's data analysis and charting wizards to find the information they are interested in. Discoverer worksheets are grouped into workbooks. A workbook can be stored on the file system or in the database.

In some cases, you will want to restrict Discoverer end users to analyzing information in worksheets that have been created for them. In other situations, it will be more appropriate to allow end users to create their own worksheets. Discoverer Administrator enables you to decide which end users can create their own workbooks, and which end users can only use workbooks that have been created for them.

For more information about workbooks and worksheets, see the *Oracle Application Server Discoverer Plus User's Guide*.

Introducing hierarchies and drills

Hierarchies are logical relationships between items that enable users to drill up and down to view information in more or less detail. To analyze information effectively, Discoverer end users will want to:

- drill down to see more detail about a particular piece of information (e.g. if the sales total for a specific region is disappointing, an end user will typically want to drill into the region's sales total figure to see which cities within that region have under-performed)
- drill up to see how the detail data contributes to information at a higher level (e.g. when looking at the sales figure for a particular city, an end user will typically want to drill up to see the total sales figure for the region)

When you load tables into a business area, Discoverer automatically creates default date hierarchies for date items. Often you will want to create your own hierarchies for other items as well.

For more information about hierarchies, see [Chapter 12, "Creating and maintaining hierarchies"](#).

Introducing summary folders

Summary folders are a representation of queried data that has been saved for reuse.

You create summary folders with Discoverer Administrator to improve query response time for end users. The response time of a query is improved because the query accesses pre-aggregated and pre-joined data rather than accessing the database tables. You can also direct Discoverer to use summary folders based on tables containing summary data that have been created by another application. These tables are known as external summary tables.

For more information about summary folders, see:

- [Chapter 13, "Managing summary folders"](#)
- [Chapter 14, "Creating summary folders manually"](#)
- [Chapter 15, "Additional information about summary folders"](#)

How does Discoverer work?

Users' requests for information from the database are in the form of worksheets.

When a user creates or opens a worksheet, Discoverer:

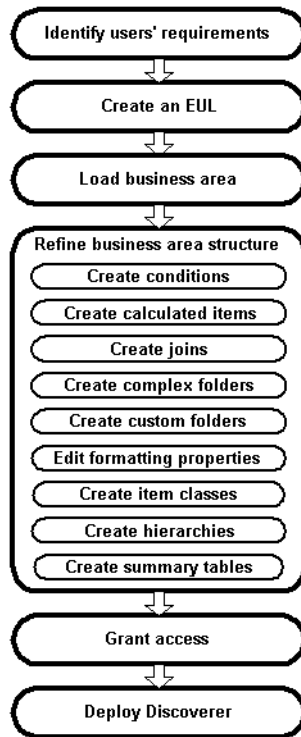
- converts the worksheet into the corresponding SQL statements (e.g. by converting folder names and item names to table names and column names respectively)
- sends the SQL statements to the database
- displays the result set that is returned from the database

In the case of Discoverer Plus and Discoverer Viewer, the SQL statements are routed to the database via Discoverer processes running on an application server machine.

What are the steps to a successful Discoverer implementation?

There are essentially six steps to the implementation of a Discoverer system, as shown in the flowchart below:

Figure 1–2 Discoverer implementation flowchart



These six steps are described in more detail below.

1. Identify users' requirements

For a Discoverer implementation to be successful, it must meet users' requirements. To find out what those requirements are, conduct interviews with key users and ask them questions like:

- what information do you use now?
- what information would you like to see?
- how would you like the information presented?

As a starting point, why not review the reports and information sources that users are currently using? You will quickly see how using Discoverer will give

users both access to the information they currently use and the ability to analyze that information in new and powerful ways.

Remember that users' requirements typically change over time. Often the biggest changes are requested by users when a system has been rolled out. When users see what Discoverer can do for them, they soon have suggestions for other areas where it could be useful.

Try and anticipate changing requirements. After all, a successful system often starts by meeting a subset of requirements and is then modified over time based on user feedback.

2. Create an EUL (mandatory if one does not exist already).

An EUL must exist before you can create a business area. If an EUL does not already exist, you must create one.

3. Create a business area and load data into it (mandatory).

Having identified users' requirements, you will have a good idea of the information that users need to access. For example, one group of users might want to access sales information, another group might want to access manufacturing information, and so on.

In Discoverer, you group information with a common business purpose into a business area. Having created a business area, you must specify which database tables and views hold that information. You do this by 'loading' the tables and views into the business area.

4. Refine the structure of the business area so that users can view data in the most flexible and understandable way.

The default settings and contents of a business area are sufficient to enable users to access and analyze data. However, Discoverer Administrator provides you with a number of features to enhance the default analysis capabilities.

Specifically, you can:

- create optional and mandatory conditions to restrict the number of rows returned in a folder (for more information, see [Chapter 11, "Creating and maintaining conditions"](#))
- create calculated items to relieve users of the task of creating complex calculations by providing them with ready-made computations (for more information, see [Chapter 10, "Creating and maintaining calculated items"](#))

- create joins to combine folders that were not automatically joined when tables were loaded from the database (for more information, see [Chapter 9, "Creating and maintaining joins"](#))
 - combine folders into complex folders to completely hide joins and relational structures from users (for more information, see [Chapter 5, "How to create complex folders"](#))
 - create custom folders, to represent a result set returned by a SQL statement that you have entered as a folder with items (for more information, see [Chapter 5, "How to create custom folders"](#))
 - edit item names, descriptions, and other formatting information to make data easier to understand (for more information, see [Chapter 8, "How to edit item properties"](#))
 - create item classes to support lists of values, alternative sorts, and drill to detail (for more information, see [Chapter 8, "What are item classes?"](#))
 - create hierarchies to simplify drill-down operations (for more information, see [Chapter 12, "Creating and maintaining hierarchies"](#))
 - create summary tables (or let Discoverer automate summary management, or register existing summary tables) to maximize query performance (for more information, see [Chapter 13, "Managing summary folders"](#))
- 5. Grant business area access to users or roles (mandatory).**

Having identified users' requirements, you will have a good idea of which users (and groups of users) need access to which information.

In some cases, different users will want access to the same information. For example, information about an employee might be required by the employee's manager, payroll staff, and users in the Human Resources department.

In other cases, it is appropriate for only one group of users to have access to the information. For example, information about an engineering project is invaluable for a project manager but of no interest to payroll staff.

Keeping users' information requirements in mind, you can grant users access to the business area.

Note that Discoverer users (whether end users or managers) never compromise the security of the underlying database. Users cannot see information in Discoverer to which they do not already have sufficient database privileges to access. In other words, all Discoverer security and privileges are additional to the database security mechanisms.

6. Deploy Discoverer

Users' requirements will determine which of the Discoverer components you decide to make available in your company.

When identifying their requirements, you will probably have realized that some users want the ability to create their own worksheets, while other users simply want to use worksheets that have been created for them. In addition, some users will want to run Discoverer using a Web browser, using either a Java applet user interface or an HTML user interface.

Use the table below as a guide to decide which Discoverer components to deploy in your organization.

User requirement	Plus	Viewer	Desktop
Install and run Discoverer on a PC running Windows	No	No	Yes
Run Discoverer using a Web browser	Yes	Yes	No
Build new worksheets	Yes	No	Yes
Save workbooks to the file system	No	No	Yes
Customize Discoverer user interface	No	Yes	No

Other factors will probably also influence your decision, including network performance and security issues.

Having decided which Discoverer components to deploy, refer to the appropriate documentation for specific installation or configuration instructions. For more information, see "[Related Documents](#)".

What is involved in maintaining a Discoverer system?

Having implemented a Discoverer system, you will probably find that a small amount of ongoing maintenance is required to make sure that Discoverer continues to meet users' requirements.

Typically, you will continue to refine business areas by:

- adding new item classes, to support new lists of values, alternative sorts, and drill to detail (for more information, see [Chapter 8, "Maintaining items and item classes"](#))

- adding new joins, to combine folders that were not automatically joined when tables were loaded from the database and which users now need access to in the same worksheet (for more information, see [Chapter 9, "Creating and maintaining joins"](#))
- adding new optional and mandatory conditions, to restrict the number of rows returned in a folder (for more information, see [Chapter 11, "Creating and maintaining conditions"](#))
- adding new calculated items, to provide users with ready-made computations that were not initially required (for more information, see [Chapter 10, "Creating and maintaining calculated items"](#))
- adding new complex folders, to simplify query creation (for more information, see [Chapter 5, "How to create complex folders"](#))
- adding new custom folders, to meet users' requirements that cannot be met using conventional folders (for more information, see [Chapter 5, "How to create custom folders"](#))
- adding new hierarchies, to enable users to analyze data in new ways (for more information, see [Chapter 12, "Creating and maintaining hierarchies"](#))
- adding new summaries to resolve performance issues with particular queries (for more information see [Chapter 13, "Managing summary folders"](#))

In addition to the above, you will probably have to change which users have access to which business areas and the operations that individual users can perform in those business areas. For example:

- when a new user joins, you will have to grant them access to the business areas they need to do their job
- when an existing user changes jobs or departments, you might have to grant them access to new business areas, or revoke their access from previous business areas

For more information, see [Chapter 6, "Controlling access to information"](#).

What are the new features in Discoverer Administrator Version 9.0.4?

Discoverer Administrator Version 9.0.4 contains the following new and improved features:

- SQL Optimization and the New Join Wizard - To improve query performance, Discoverer now optimizes the SQL that it generates. For more information, see ["Creating and maintaining joins"](#)
- Heterogeneous Data Services - Discoverer users can now take advantage of generic connectivity (a mechanism supported by the Oracle database Heterogeneous Services) to access ODBC or OLE DB (object linking and embedding database) databases. For more information, see ["What are Heterogeneous Services?"](#)

What are the new features in Discoverer Administrator Version 9.0.4?

Getting started with Discoverer Administrator

Getting started with Discoverer Administrator

This chapter explains how to start using Discoverer Administrator, and includes the following topics:

- ["What are the prerequisites for using Oracle Discoverer?"](#)
- ["How to start Discoverer Administrator"](#)
- ["What is the Workarea?"](#)
- ["About Discoverer Administrator documentation and online help"](#)

What are the prerequisites for using Oracle Discoverer?

What are the system prerequisites?

Before you can use Discoverer Administrator:

- A suitable database must be installed and available. An Oracle 8.1.7 (or later) Enterprise Edition database will support the use of materialized views to improve the performance of summary folders.
- Discoverer Administrator must have been installed on a PC, typically as part of a full Oracle Developer Suite installation.

Before end users can use Discoverer, either one or both of the following must have been installed:

- Discoverer Plus and Discoverer Viewer must have been installed on an application server machine and configured correctly as part of an OracleAS installa-

tion (for more information, see the *Oracle Application Server Discoverer Configuration Guide*)

- Discoverer Desktop must have been installed on users' PCs.

What are the data access prerequisites?

To create and maintain a Discoverer system using Discoverer Administrator, you will require certain Discoverer privileges and database privileges:

- to create an EUL you must have the privileges described in:
 - [Chapter 3, "What privileges do you need to create an End User Layer in an Oracle database?"](#)
 - [Chapter 3, "What privileges do you need to create an End User Layer in a non-Oracle database?"](#)
- to manage an EUL you must have:
 - the Discoverer Administration privilege on the EUL
 - the Allow Administration privilege on business areas you want to modify
 - the SELECT database privilege on any tables you want to add to a business area
- to install the tutorial, see the *Oracle Discoverer Administrator Tutorial*
- to take advantage of the following Discoverer features, you need specific privileges:
 - Automated Summary Management (for more information, see [Chapter 13, "What are the prerequisites for creating summary folders with ASM?"](#))
 - manual summary folder creation (for more information, see [Chapter 14, "What are the prerequisites for creating summary folders manually in Discoverer?"](#))

To use a Discoverer system, end users will require certain Discoverer and database privileges:

- access to at least one EUL
- access to at least one business area in the EUL
- the SELECT database privilege (granted either directly to database users or via a database role) on the tables on which folders in a business area are based

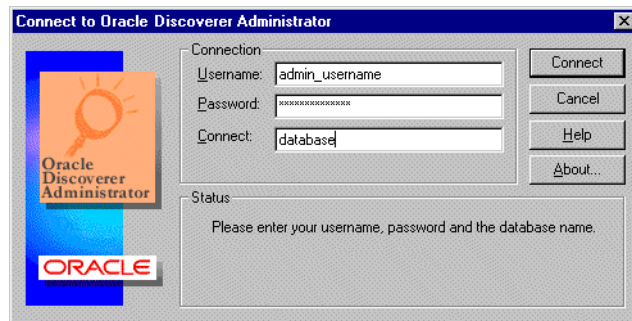
- to take advantage of the following Discoverer features, users need specific privileges
 - scheduled workbooks (for more information, see [Chapter 7, "What are the prerequisites for scheduling workbooks?"](#))
 - user PL/SQL functions (for more information, see [Chapter 10, "What are custom PL/SQL functions?"](#))

How to start Discoverer Administrator

To start Discoverer Administrator:

1. From the Windows Start menu, choose Programs | Oracle Developer Suite - <HOME_NAME> | Discoverer Administrator to display the Connect to Oracle Discoverer Administrator dialog.

Figure 2–1 Connect to Oracle Discoverer Administrator dialog



2. Enter the username of the database user with which you want to start Discoverer Administrator in the **Username** field
3. Enter the password of the database user with which you want to start Discoverer in the **Password** field.
4. Specify the database to connect to in the **Connect** field, using the following guidelines:
 - if you are logging onto your default Oracle database, do not enter anything in the **Connect** field

- if you are logging onto a different Oracle database, specify the name of the database (if you not sure which name to use, contact your database administrator)
5. Click the Connect button to start Discoverer Administrator and connect to the database.

What you see next depends on your Discoverer system:

- if you have access to one or more EULs, you are prompted to create a new business area or open an existing business area in your default EUL (for more information, see [Chapter 4, "Creating and maintaining business areas"](#))
- if you do not have access to any EULs (e.g. if you are the first person to use Discoverer Administrator in your organization, or if you have not been given Administration privilege on any existing EULs), you are prompted to create a new EUL (for more information, see [Chapter 3, "How to create an End User Layer for an existing database user"](#))

Notes

- The Connect to Oracle Discoverer Administrator dialog might contain the **Oracle Applications User** check box. Select this check box if you want to use Discoverer Administrator to manage an EUL for use with Oracle Applications. For more information about using Discoverer with Oracle Applications, see [Chapter 16, "Using Discoverer with Oracle Applications"](#).
- You always start Discoverer Administrator in your default EUL. Your default EUL is the one specified on the "[Options dialog: Default EUL tab](#)". If you want to change the EUL you are working in, you must change your default EUL and then reconnect to Discoverer Administrator.
- When you use Discoverer Administrator, you should make sure that no more than one current connection exists against a particular EUL. When you have a single connection against an EUL, you avoid the risk of unknowingly making conflicting changes to EUL objects.

What is the Workarea?

The Workarea is your view into the End User Layer. The Workarea is where you maintain the EUL by creating and editing:

- business areas and folders

- items
- hierarchies
- item classes
- summary folders

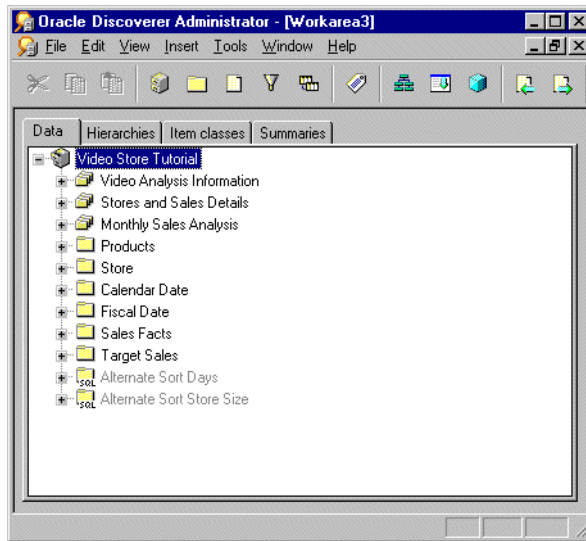
The Workarea window is displayed within the Discoverer Administrator main window. You can open more than one Workarea window at a time, which is useful when you want to copy objects between business areas. Note however that all Workarea windows contain the same business areas.

About the tabs in the Workarea window

The Workarea window contains four tabs:

- The Data tab displays the structure and content of each business area. The Data tab enables you to:
 - create calculated items
 - create complex folders
 - create joins
 - create conditions
 - create new business areas, folders, and items
 - modify object properties

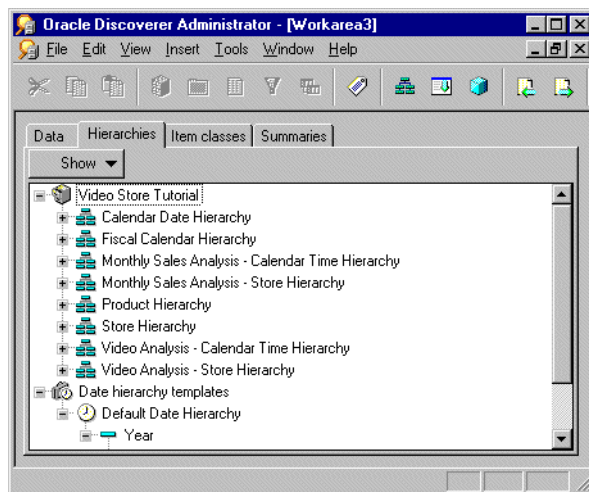
Figure 2–2 Workarea window: Data tab



For more information about the Data tab and the icons displayed on it, see ["Workarea: Data tab"](#)

- The Hierarchies tab displays the hierarchies within each business area. The Hierarchies tab enables you to:
 - create new hierarchies
 - review the content and organization of existing hierarchies
 - view the hierarchy templates supplied with Discoverer Administrator

The Show button on the Hierarchies tab enables you to specify the hierarchies that are displayed.

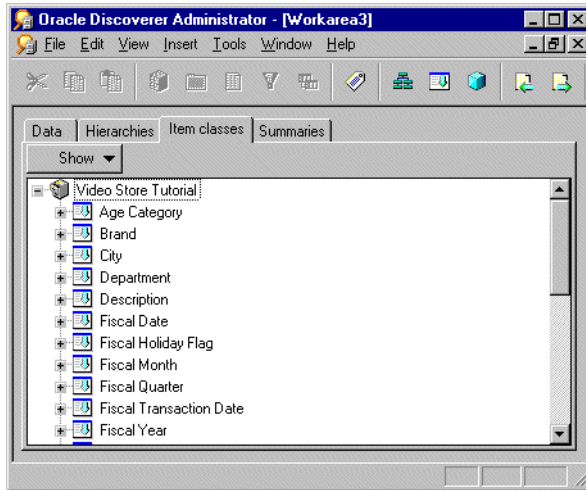
Figure 2–3 Workarea window: Hierarchies tab

For more information about the Hierarchies tab and the icons displayed on it, see "[Workarea: Hierarchies tab](#)".

- The Item Classes tab displays the item classes within each business area. The Item Classes tab enables you to:
 - create new item classes
 - view the list of values associated with an item class (if there is one)
 - view items that use each item class
 - identify the item classes that have drill to detail and alternative sort attributes, and whether those options are active

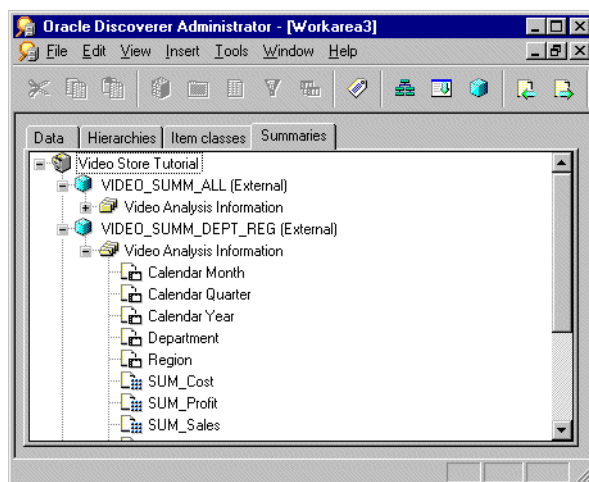
The Show button on the Item Classes tab enables you to specify the item classes that are displayed.

Figure 2–4 Workarea window: Item Classes tab



For more information about the Item Classes tab and the icons displayed on it, see "[Workarea: Item Classes tab](#)".

- The Summaries tab displays the summary folders within each business area. The Summaries tab enables you to:
 - create new summary folders
 - review the organization and definition of summary folders
 - refresh summary folders

Figure 2–5 Workarea window: Summaries tab

For more information about the Summaries tab and the icons displayed on it, see "[Workarea: Summaries tab](#)".

About the context sensitive menus in the Workarea window

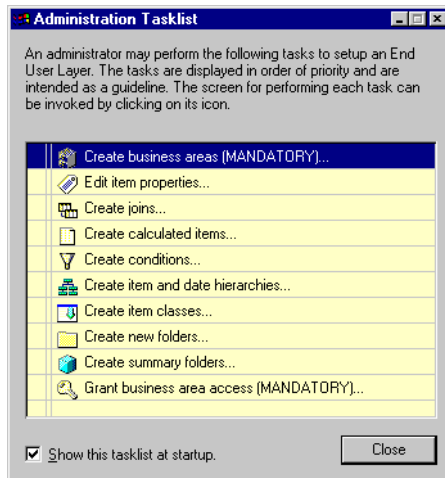
If you click the right-mouse button when working with Discoverer Administrator, a popup menu is displayed. In the Workarea window, the contents of this popup menu are the commands most frequently used with the currently selected object.

If no object is currently selected, the popup menu displays commands for working with a business area in general and commands appropriate to the current tab.

About the Administration Tasklist

When you first start Discoverer Administrator, the Administration Tasklist is displayed on top of the main Discoverer Administrator window.

Figure 2–6 Administration Tasklist



Use the Administration Tasklist in two ways:

- as a reminder of the basic steps involved in preparing a business area
- as a shortcut method of displaying the dialogs associated with the listed tasks

About Discoverer Administrator documentation and online help

Discoverer Administrator is supplied with online Help and documentation.

The Discoverer Administrator Help System gives you context sensitive access to reference information from the Administration Guide in HTML format.

To start the Help System either click Help in a Discoverer dialog or choose Help | Help Topics.

- the Help button on Discoverer Administrator dialogs displays detailed context sensitive help on the fields in the dialog
- the Help | Help topics menu option displays the contents of the Oracle Discoverer Administrator help system, including the context sensitive dialog help
- the Help | Manuals menu option displays a list of available Discoverer manuals (including the *Oracle Discoverer Administrator error messages file*)

To find a topic in the Help System:

- click the Contents icon at the top of each help page or choose Help | Help Topics (to see a list of the topics in the help system)
- click the Index icon at the top of every help page to see a list of index entries

To view (and print) the Administration Guide in PDF format, use the Oracle Developer Suite documentation CD.

Hint: To search for words or phrases, use the Administration Guide in PDF format.

Additional Discoverer documentation is available on the Oracle Application Server Documentation CD.

Creating and maintaining End User Layers

Creating and maintaining End User Layers

This chapter explains how you create and maintain End User Layers using Discoverer Administrator, and contains the following topics:

- "What is an End User Layer?"
- "What are End User Layer owners?"
- "What privileges do you need to create an End User Layer in an Oracle database?"
- "What privileges do you need to create an End User Layer in a non-Oracle database?"
- "What privileges do you need to maintain an End User Layer?"
- "What is the EUL Gateway?"
- "How to create an End User Layer for an existing database user"
- "How to create an End User Layer in a new database user"
- "How to delete an End User Layer"
- "How to view or change the default End User Layer"
- "About copying EULs and EUL objects by exporting and importing"
- "Which export/import method to use"
- "How to export the entire EUL using the Export Wizard"
- "How to export selected business areas using the Export Wizard"
- "How to export selected EUL objects using the Export Wizard"

- ["How to export End User Layer objects \(to import to another database\) using the Discoverer command line interface"](#)
- ["How to import End User Layer objects to a database \(after export from another database\) using the Discoverer command line interface"](#)
- ["How to export an EUL using the standard database export utility"](#)
- ["How to import an EUL using the standard database import utility"](#)
- ["How to import EUL objects from a file using the Import Wizard"](#)
- ["Notes about EUL creation and maintenance"](#)

What is an End User Layer?

The End User Layer (EUL) is the metadata (i.e. data about the actual data in a database) that is simple and easy for Discoverer end users to understand. You use Discoverer Administrator to create, customize, and maintain this view for your users so they can easily access data in Discoverer. You must have access to at least one EUL in order to use Discoverer. Access is granted using the Privileges dialog, described in [Chapter 6, "Controlling access to information"](#).

Why is the End User Layer useful?

The EUL insulates Discoverer end users from the complexity usually associated with databases. It provides an intuitive, business-focused view of the database using terms that Discoverer end users are familiar with and can easily understand. This enables Discoverer end users to focus on business issues instead of data access issues.

- What does the EUL contain?

The EUL contains the metadata that defines one or more business areas. A business area is a conceptual grouping of tables and/or views that apply to a user's specific data requirements. Business areas can be set up to reflect the needs of the user or group of users accessing the EUL.

For example, an accounting department might have an accounting business area that represents data about budgets and finance, while project leaders in an engineering department might have a business area specifically for projects requiring budget information. Although some of the columns may be the same, the exact combination of tables and views for each department may be different.

- Discoverer creates the EUL tables

The EUL Manager dialog enables you to create or delete, the set of tables that make up an EUL.

When a Discoverer manager defines folders and items in a business area using Discoverer Administrator, Discoverer generates the appropriate SQL statements (that define the selections from a table, view, or column) and stores them in the EUL tables. When a Discoverer end user executes a query (in Discoverer Plus or Discoverer Viewer), Discoverer generates the corresponding SQL statement and sends it to the database, which in turn returns the results to display in Discoverer. The Discoverer end user does not have to understand any SQL to access, analyze, and retrieve data. It is all handled by Discoverer.

- Discoverer exports/imports EUL objects

You can export EUL objects (e.g. business areas, workbooks, folders, items) from one database and import them into another database. For example, you might want to move EUL objects when transitioning from a development environment to a production environment.

You can import and export EULs and EUL objects in the following ways:

- using the Discoverer Export Wizard and Import Wizard
- using the Discoverer command line interface
- using the standard database export/import commands

For more information, see ["Which export/import method to use"](#).

Note: The EUL preserves the database's data integrity. Nothing that you or the Discoverer end user does with Discoverer affects the application data in the database; Discoverer only affects the metadata held in the EUL. There are however, certain PL/SQL functions that can affect the data in the database (for more information, see your database administrator).

What are End User Layer owners?

An End User Layer (EUL) owner is the database user that an EUL is created for.

A database user can only own one EUL. If you are connected to your own EUL and you attempt to create a new one, Discoverer Administrator prompts you to delete your existing EUL. If you create a EUL for a database user that already owns an EUL, Discoverer Administrator prompts you to delete the existing EUL before creating the new one.

The EUL owner maintains and modifies their own EUL and can grant access to the EUL to other users. Depending on the privileges given to the other users, those users can use and make changes to the EUL.

When you create an EUL, you specify who has access to it, as follows:

- every user in the database (PUBLIC access)
- only the EUL owner (PRIVATE access)

Note: It is recommended that you specify PRIVATE access, where security is an issue. You can subsequently define business area access and privileges for users and roles as required.

To change access to an existing EUL, you must be logged in as the owner of the EUL or as a user who has the following Discoverer task privileges:

- Administrator
- Set Privileges

For more information, see [Chapter 6, "Controlling access to information"](#).

What privileges do you need to create an End User Layer in an Oracle database?

To create an End User Layer in an Oracle database, the database user that the EUL is being created in must have the following database privileges:

- CREATE SESSION
- CREATE TABLE
- CREATE VIEW
- CREATE SEQUENCE
- CREATE PROCEDURE

The database user must also have the following specified:

- a default tablespace (this must not be a temporary tablespace)
- a quota set in the default tablespace (recommended minimum is 3MB)

For more information about the default tablespace, see "[Create EUL Wizard: Step 2 dialog](#)".

If you are running Discoverer against an Oracle 8.1.7 or later Enterprise Edition database, the database user requires further privileges to make use of Discoverer's manual summary management and Automated Summary Management (ASM) functionality. For more information, see:

- [Chapter 13, "What are the prerequisites for creating summary folders with ASM?"](#)
- [Chapter 14, "What are the prerequisites for creating summary folders manually in Discoverer?"](#)

The EUL Manager dialog enables you to:

- create an EUL for an existing Oracle database user, provided that database user meets the above conditions
- create an EUL for a new Oracle database user, provided you (the user creating the new user) have the following database privileges:
 - CREATE SESSION
 - CREATE USER
 - GRANT ANY PRIVILEGE
 - ALTER USER

Note: The above privileges are all you need to create a new EUL for a new database user. You can connect to Discoverer Administrator as a database user with only these privileges and create a new EUL in a new database user.

If you create an EUL for a new Oracle database user, Discoverer grants the necessary privileges and sets the default tablespace and quota.

What privileges do you need to create an End User Layer in a non-Oracle database?

To create an End User Layer for a non-Oracle database user, the database user must have the following database privileges:

- CREATE SESSION (use your database's equivalent for this Oracle term)
- CREATE TABLE
- CREATE VIEW

Discoverer Administrator does not enable you to create new users for non-Oracle databases.

What privileges do you need to maintain an End User Layer?

You can maintain EULs in Discoverer Administrator if your database user has the Administration privilege.

To apply the Administration privilege to a database user, see [Chapter 6, "How to specify a user or role \(responsibility\) to perform a specific task"](#).

What is the EUL Gateway?

The EUL Gateway provides a way for Discoverer to populate an EUL with meta-data from another source, such as Oracle Designer. The EUL Gateway allows meta-data defined in another tool or application to be loaded directly into the EUL.

To set up an EUL Gateway see the document eulgatw.doc located in the <ORACLE_HOME>\discoverer\kits directory.

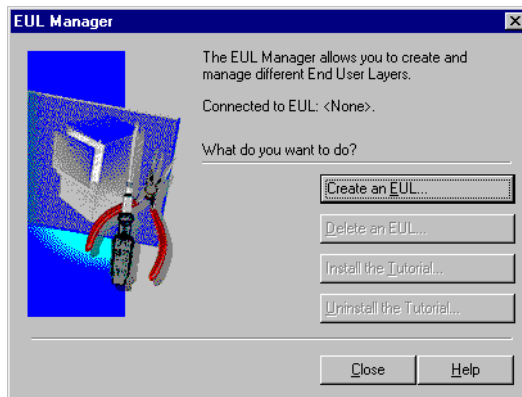
For information about loading a business area from the EUL Gateway see [Chapter 4, "How to create a business area using the Load Wizard"](#).

How to create an End User Layer for an existing database user

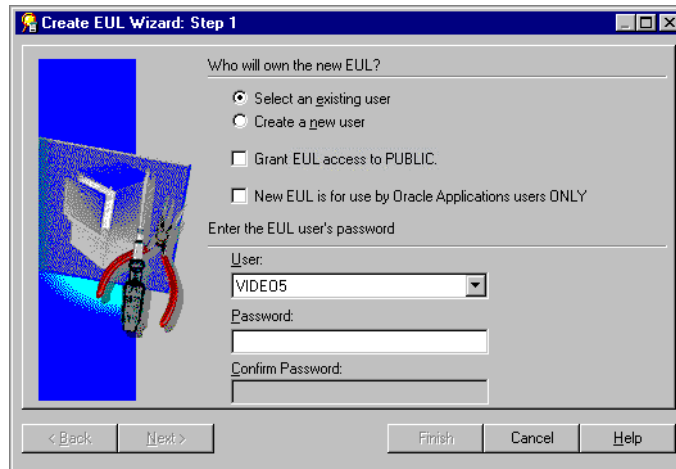
To create an EUL for an existing database user:

1. Choose Tools | EUL Manager to display the ["EUL Manager dialog"](#).

Figure 3–1 *EUL Manager dialog*



2. Click Create an EUL to display the ["Create EUL Wizard dialog"](#).

Figure 3–2 Create EUL Wizard Step 1 dialog

3. Select the **Select an existing user** radio button.
4. Select or clear the **Grant EUL access to PUBLIC** check box as required:
 - select this check box to enable all users in the current database to access the new EUL
 - clear this check box to enable only the EUL owner to view data through the new EUL

Note: It is recommended that you clear this check box where security might be an issue.
5. Select or clear the **New EUL is for use by Oracle Applications users ONLY** check box as required:
 - select this check box to restrict the new EUL to Oracle Applications users only (for more information about Applications Mode EULs, see [Chapter 16, "Using Discoverer with Oracle Applications"](#))
 - clear this check box to create a standard EUL
6. Select the database user that you want to own the new EUL from the **User** drop down list.
7. If you specified a database user other than the current user to be the EUL owner, you need to specify the database user's password.
8. Click **Finish**.

Discoverer Administrator displays the Creating EUL progress bar and creates a new EUL for the specified database user.

When the new EUL has been created, Discoverer gives you the option to install the Discoverer tutorial in the new EUL. For more information, see the *Oracle Discoverer Administrator Tutorial*.

How to create an End User Layer in a new database user

Note: This feature is not available with non-Oracle databases. If you are using a non-Oracle database, ask your database administrator to create the necessary user IDs on the database.

For more information about the privileges required to create an EUL in a new database user, see ["What privileges do you need to create an End User Layer in an Oracle database?"](#).

To create an EUL in a new database user:

1. Choose Tools | EUL Manager to display the ["EUL Manager dialog"](#).
2. Click Create an EUL to display the ["Create EUL Wizard dialog"](#).
3. Select the **Create a new user** radio button.

If the **Create a new user** radio button is unavailable, contact your database administrator to grant the CREATE USER privilege.

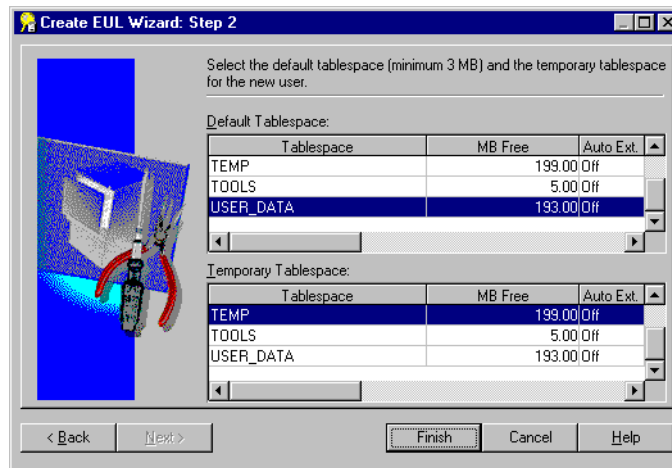
4. Select or clear the **Grant EUL access to PUBLIC** check box as follows:
 - select this check box to enable all users in the current database to access the new EUL
 - clear this check box to enable only the EUL owner to view data through the new EUL

Note: It is recommended that you clear this check box where security might be an issue.

5. Select or clear the **New EUL is for use by Oracle Applications users ONLY** check box as follows:
 - select the check box to restrict the new EUL to Oracle Applications users only (for more information about Applications Mode EULs, see [Chapter 16, "What are Oracle Applications?"](#))
 - clear the check box to create a standard EUL

6. Specify a name for the new database user in the **User** field.
7. Specify a password for the new database user in the **Password** field.
8. Specify the new database user's password again in the **Confirm Password** field.
9. Click Next to display the "Create EUL Wizard: Step 2 dialog".

Figure 3–3 Create EUL Wizard Step 2 dialog



10. Specify the default and temporary tablespaces for the new database user.

If you are unsure which to choose, see your database administrator. For more information, see the "Create EUL Wizard: Step 2 dialog".

11. Click Finish.

Discoverer Administrator displays the Creating EUL progress bar and creates a new database user and new EUL in that database user.

When the new database user and EUL have been created, Discoverer gives you the option to install the Discoverer tutorial in the new EUL. For more information, see the *Oracle Discoverer Administrator Tutorial*.

How to delete an End User Layer

You might want to delete an EUL for a number of reasons. For example, it might be an old or a test EUL.

Note: You must connect as the owner of the EUL that you want to delete.

To delete an EUL:

1. Choose File | Connect to display the "[Connect dialog](#)".
2. Specify the username, password, and connect string for the owner of the EUL that you want to delete, and click Connect to display the "[Load Wizard: Step 1 dialog](#)".
3. Click Cancel to close the Load Wizard.
4. Choose Tools | EUL Manager.
5. Click Delete an EUL to display the "[Delete EUL dialog](#)".

Discoverer prompts you to confirm that you want to delete the current EUL.

6. Make sure that the EUL specified in the EUL field is the one you want to delete and click OK.

If the EUL name displayed is incorrect, go back to Step 2 and use the correct connect string to connect as the EUL owner.

When you click OK, Discoverer prompts you to confirm that you want to delete all EUL tables, all EUL information and workbooks in the database and all summary data and information.

7. Click Yes to continue.
8. Click OK to delete the EUL.

Discoverer deletes the EUL objects for the current database user.

How to view or change the default End User Layer

You can view or change which EUL is the default EUL for the current database user (i.e. the EUL used when the current database user connects to Discoverer Administrator).

Note: You can only select an alternative EUL if the database user has access to more than one EUL.

To view or change the default EUL:

1. Choose Tools | Options | Default EUL tab to display the "[Options dialog: Default EUL tab](#)".

2. (optional) Click the EUL that you want to use next time you connect as the current database user and click OK.

About copying EULs and EUL objects by exporting and importing

Typically, you will want to:

- backup or archive EULs
- distribute EULs to other locations
- copy business areas between EULs (for more information, see [Chapter 4, "How to copy business areas between EULs"](#))
- copy EUL objects (e.g. business areas, folders, hierarchies, calculations) from one EUL to another
- apply patches to a production environment

There are a number of different ways to copy EULs and EUL objects, depending on whether you want to:

- copy specified EUL objects into another EUL
- copy an entire EUL and recreate it as a new EUL
- copy the database user that is the EUL owner

In all these cases, you perform an export operation followed by an import operation. For more information, see ["Which export/import method to use"](#).

If you use Discoverer Administrator to export EULs or EUL objects, you will create a Discoverer EUL export file (with an .EEX suffix). Having created an .EEX file, you can then use Discoverer Administrator to import the .EEX file.

Note that you can import .EEX files:

- that have been exported from Discoverer Release 3.1 and earlier
- that have been exported from Discoverer Release 4.1 and later (these EUL export files are in XML format, although they have an .EEX extension)

Which export/import method to use

To copy EUL objects between EULs you first export the EUL objects to a file, then import them into a new EUL or new database.

You copy EUL objects between EULs using

- the Discoverer Export Wizard and Import Wizard (for more information, see ["About using the Discoverer Export Wizard and Import Wizard"](#))
- the Discoverer command line interface (for more information, see ["About using the Discoverer command line interface to export/import EUL objects"](#))
- the standard database export/import commands (for more information, see ["About using the standard database export/import commands to export/import EUL owners"](#))

About using the Discoverer Export Wizard and Import Wizard

You use the Discoverer Export Wizard to export EUL objects to an EUL export file (with a suffix .EEX). Having exported the objects, you can then import the .EEX file using the Discoverer Import Wizard.

The EUL objects that you export (to an .EEX file) include business areas, folders, item hierarchies, date hierarchies, item classes, workbook definitions (created in Discoverer Desktop and Discoverer Plus), PL/SQL function registration information, summary folders, and the automated summary management (ASM) policy.

Refer to the following topics to find out how to export or import EUL objects using the Discoverer user interface:

- ["How to export the entire EUL using the Export Wizard"](#)
Use this option to export an entire EUL to a file when you want to copy objects from the EUL into a new EUL or to create a backup.
- ["How to export selected business areas using the Export Wizard"](#)
Use this option when you want to use the export file to update an existing EUL with selected business areas.
- ["How to export selected EUL objects using the Export Wizard"](#)
Use this option when you want to use the export file to update an existing EUL with selected EUL objects. For example, when applying a minor change to a production business area.
- ["How to import EUL objects from a file using the Import Wizard"](#)
Use this option to import EUL objects (e.g. business areas, folders, hierarchies, calculations) from one EUL in order to re-use them in another EUL.

Note: The Export Wizard does not export the database, EUL tables, or database objects referenced by the EUL. To export these objects, you must follow the steps in ["How to export an EUL using the standard database export utility"](#).

About using the Discoverer command line interface to export/import EUL objects

You use the Discoverer command line interface to export/import EUL objects without using the Discoverer user interface. For more information about the Discoverer command line interface, see [Chapter 21, "What is the Oracle Discoverer command line interface?"](#).

Refer to the following topics to find out how to export and import EUL objects using the Discoverer command line interface:

- ["How to export End User Layer objects \(to import to another database\) using the Discoverer command line interface"](#)

Use this option to copy EUL objects from one database to another by exporting them to a Discoverer export file (.EEX) and then importing the .EEX file to another database using the command line interface.

- ["How to import End User Layer objects to a database \(after export from another database\) using the Discoverer command line interface"](#)

Use this option to import EUL objects into a new database.

Note: The Discoverer command line interface export facility does not export the database, EUL tables, or database objects referenced by the EUL definitions. To export these objects, you must follow the steps in ["How to export an EUL using the standard database export utility"](#).

About using the standard database export/import commands to export/import EUL owners

You use standard database export/import commands to export/import the database, EUL tables, and database objects referenced by the EUL definitions.

Use the following tasks to export/import EUL objects between databases:

- ["How to export an EUL using the standard database export utility"](#)

Use this option to export an entire EUL to a file when you want to copy objects from the EUL into a new EUL or to create a backup.

- ["How to import an EUL using the standard database import utility"](#)

Use this option to import the EUL business areas, EUL tables and saved workbooks from a database dump file (.DMP) into a new EUL owner on the new database.

How you export or import an EUL depends on:

- the version of the Oracle client software installed on your machine
- the version of the Oracle database on which the EUL resides

We recommend that the version of the Oracle database and the version of the Oracle database client software installed on your machine are the same. If the versions are not the same (e.g. if the EUL is on an Oracle8i database and Oracle9i client software is installed on your machine), you might not be able to follow the instructions below. If you are unable to export the EUL, contact your database administrator and ask them to export the EUL for you.

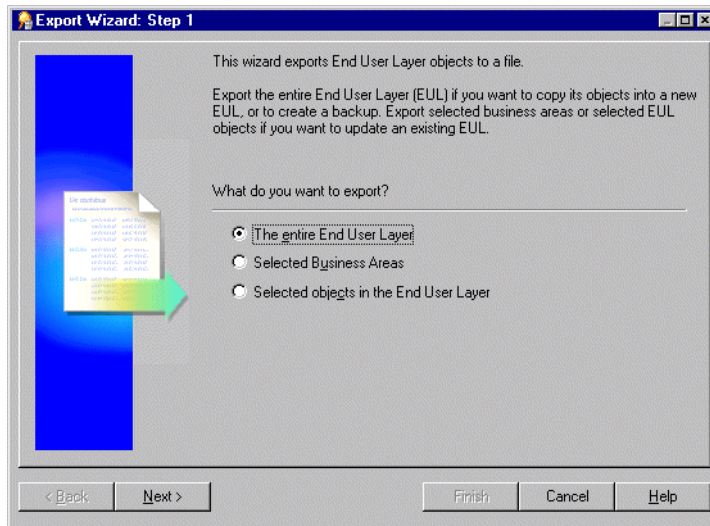
How to export the entire EUL using the Export Wizard

Use this option to export an entire EUL to a file when you want to copy objects from the EUL into a new EUL or to create a backup.

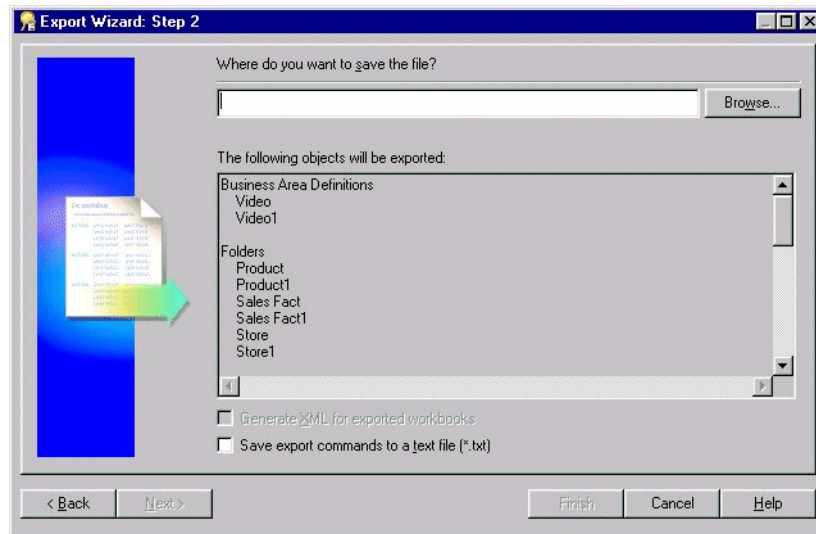
To export the entire EUL using the Export Wizard:

1. Choose File | Export to display the "Export Wizard Step 1 dialog".

Figure 3–4 *Export Wizard: Step 1 dialog*



2. Select the **The entire End User Layer** radio button and click Next to display the "Export Wizard: Step 2 dialog".

Figure 3–5 Export Wizard: Step 2 dialog

You use the above dialog to specify a name and location for the export file.

3. Click Browse to display the Save As dialog.

This enables you to browse for a location to save the EUL export file.

4. Enter a suitable name for the exported EUL.

5. (optional) Select the **Generate XML for exported workbooks** check box to save any workbook definitions in XML format.

This enables you to view workbook definitions in an XML browser.

Note: The export file (*.EEX) is always in XML format but workbooks by default are saved inside it as a binary to save space and time. Select this check box to save the workbook definitions additionally as XML inside the export file.

6. (optional) Select the **Save export commands to a text file (*.txt)** check box to save the export commands that created this export to a text file.

This creates an additional file containing the commands used to create this export and applies the file extension .txt. This file can then be used in conjunction with the command line interface (for further information about the

command line interface, see [Chapter 21, "Oracle Discoverer command line interface"](#)).

7. Click Finish to create the export file (and any additional files selected) in the specified location and display the Export Log.

Figure 3–6 *Export Log dialog*



The Export Log displays information about what has been exported.

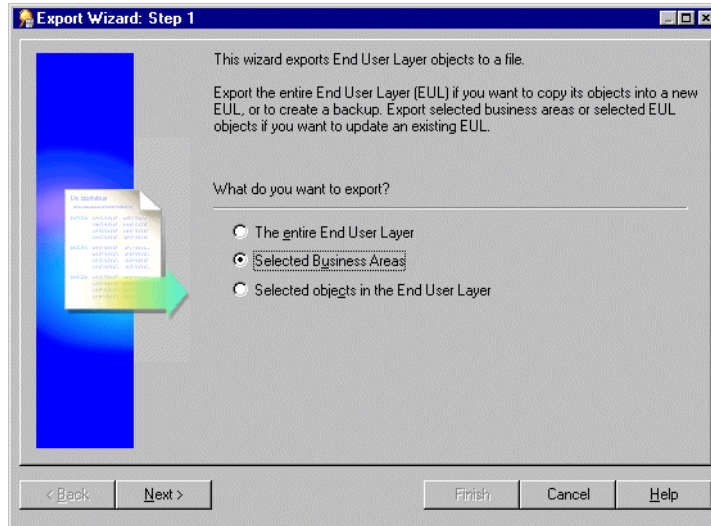
8. (optional) Click Save to specify a name and location to save the Log file.
9. Click Close to finish.

How to export selected business areas using the Export Wizard

Use this option when you want to use the export file to update an existing EUL with selected business areas.

To export the selected business areas using the Export Wizard:

1. Choose File | Export to display the ["Export Wizard Step 1 dialog"](#).

Figure 3–7 Export Wizard Step 1 dialog

2. Select the **Selected business areas** radio button and click Next to display the "Export Wizard: Step 2 dialog".
3. Move the business areas that you want to export from the Available list to the Selected list.

You can select more than one business area at a time by holding down the Ctrl key and clicking another business area.

4. Click Next to display the "Export Wizard: Step 3 dialog".
5. Click Browse to display the Save As dialog.

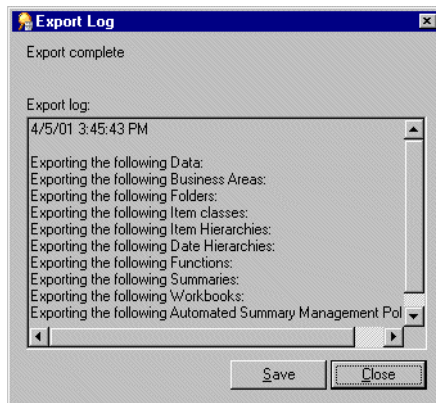
This enables you to browse for a location to save the business area export file.

6. Enter a suitable name for the exported business area.
7. (optional) Select the **Save export commands as a text file (*.txt)** check box to save the export commands that created this export to a text file.

This creates an additional text file containing the commands used to create this export and applies the file extension .txt. This file can then be used in conjunction with the command line interface (for further information about the command line interface, see [Chapter 21, "Oracle Discoverer command line interface"](#)).

8. Click Finish to create the export file (and any additional files selected) in the specified location and display the Export Log.

Figure 3–8 *Export Log dialog*



The Export Log displays information about what has been exported.

9. (optional) Click Save to specify a name and location to save the Log file.
10. Click Close to finish.

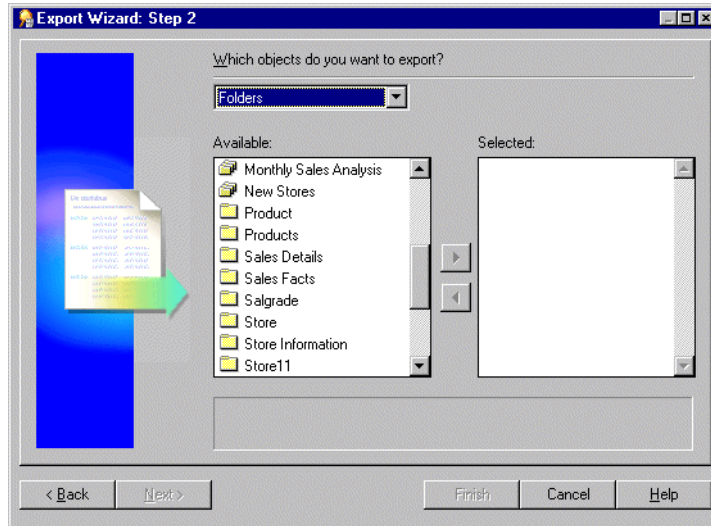
Note: If you are copying business areas between EULs, continue with step 2 of the following task, see [Chapter 4, "How to copy business areas between EULs"](#).

How to export selected EUL objects using the Export Wizard

Use this option when you want to use the export file to update an existing EUL with selected EUL objects. For example, when applying a minor change to a production business area.

To export the selected objects using the Export Wizard:

1. Choose File | Export to display the ["Export Wizard Step 1 dialog"](#).
2. Select the **Selected Objects in the End User Layer** option and click Next to display the ["Export Wizard: Step 2 dialog"](#).

Figure 3–9 Export Wizard: Step 2 dialog

3. Use the **Which objects do you want to export?** drop down list to display the objects (EUL objects) that you want to export to a file.

For example, folders, item classes and item hierarchies.

Note: If you select a business area above, Discoverer exports just the definition of the business area and not its folders and items. To export business area folders and items you need to select them explicitly.

4. Move the object that you want to export from the **Available** list to the **Selected** list.

You can select more than one object at a time by holding down the Ctrl key and clicking another object.

5. Click Next to display the "Export Wizard: Step 3 dialog".

6. Click Browse to display the Save As dialog.

This enables you to browse for a location to save the export file.

7. Enter a suitable name for the exported objects.

8. (optional) Select the **Generate XML for exported workbooks** check box to save any workbooks in XML format.

Note: The export file (*.EEX) is always in XML format but workbooks by default are saved inside it as a binary to save space and time. Select this check box to save the workbook definitions additionally as XML inside the export file.

9. (optional) Select the **Save export commands as a text file (*.txt)** check box to save the export commands that created this export to a text file.

This creates an additional text file containing the commands used to create this export and applies the extension .txt. This file can then be used in conjunction with the command line interface (for further information about the command line interface, see [Chapter 21, "Oracle Discoverer command line interface"](#)).

10. Click Finish to create the export file (and any additional files selected) in the specified location and display the Export Log.

Figure 3–10 *Export Log dialog*



The Export Log displays information about what has been exported.

11. (optional) Click Save to specify a name and location to save the Log file.
12. Click Close to finish.

How to export End User Layer objects (to import to another database) using the Discoverer command line interface

Use this option to copy EUL objects from one database to another by exporting them to a Discoverer export file (.EEX) and then importing the .EEX file to another

database using the command line interface. This is the first of two tasks that enable you to copy EUL objects from one database to another. You must complete this export task before you can import the EUL objects into another database.

To export EUL objects from a database using the Discoverer command line interface:

1. Use the Discoverer command line interface `/export` option to export the required EUL objects to a Discoverer export file (.EEX).

For example, to export the Video Store Tutorial business area and two workbooks ("Vistr4 - Video Tutorial Workbook" and "Vidaf4 - Analytic Function Examples") to the vidstr.eex file, you might type the following:

```
D:\orant\bin\dis51adm.exe /connect eulowner/eulowner@orcl.world /export
"D:\vidstr.eex" "Video Store Tutorial" /workbook "Vistr4 - Video Tutorial
Workbook" /workbook "Vidaf4 - Analytic Function Examples"
```

For more information about exporting EUL objects using the Discoverer command line interface, see [Chapter 21, "/export \(EUL objects\)"](#).

Notes

- To copy the EUL objects to another database, see ["How to import End User Layer objects to a database \(after export from another database\) using the Discoverer command line interface"](#).

How to import End User Layer objects to a database (after export from another database) using the Discoverer command line interface

Use this option to import EUL objects into a new database. Before you can complete this task you must export the EUL objects to a Discoverer export file (.EEX) (for more information, see ["How to export End User Layer objects \(to import to another database\) using the Discoverer command line interface"](#)). This is the second of two tasks enabling you to copy EUL objects from one database to another.

To import End User Layer objects into a database using the Discoverer command line interface:

1. Use the Discoverer command line interface `/import` option to import the EUL objects into the new EUL owner on the new database.

For example, to import the vidstr.eex file, created above you might type the following:

```
D:\orant\bin\dis51adm.exe /connect eulowner/eulowner@orcl.world /import
"D:\vidstr.eex"
```

For more information about importing EUL objects using the Discoverer command line interface, see [Chapter 21, "/import \(EUL objects\)"](#).

How to export an EUL using the standard database export utility

Use this option to export all business areas, EUL tables and saved workbooks to a .dmp file.

To export an EUL using the standard database export utility (assuming the EUL resides on an Oracle9i database and you are using a machine on which you have installed Oracle Developer Suite):

1. Display a command line window (e.g. by choosing Command Prompt from the Windows Start menu).
2. Navigate to the location where you want to export the EUL.

For example, to export the EUL to D:\ORACLE9i and the MS-DOS window currently displays C: , you would:

- type D: and press [Return]
- type cd \ORACLE9i and press [Return]

3. Type the following command:

```
exp <eulowner>/<password>@<dbname> file=<filename.dmp> owner=<eulowner>
```

For example, to export an EUL owned by a database user hrmgr to a file hreul.dmp, you would type the following:

```
exp hrmgr/hrpswr@HRDB file=hreul.dmp owner=hrmgr
```

The EUL tables (and associated synonyms, views, and other definitions) are exported to the specified .dmp file in the D:\ORACLE9i directory.

When the export is complete, Discoverer displays the following message:

```
Export terminated successfully without warnings.
```

4. Close the command line window.

Having exported the EUL, you are now ready to import it into a new database user.

How to import an EUL using the standard database import utility

Use this option to import the EUL business areas, EUL tables and saved workbooks from a database dump file (.DMP) into a new EUL owner on the new database.

Note: It is recommended that this database user owns no other tables.

To import an EUL using the standard database import utility (assuming the EUL resides on an Oracle9i database and you are using a machine on which you have installed Oracle Developer Suite):

1. Display a command line window (e.g. by choosing Command Prompt from the Windows Start menu).

2. Navigate to the location where you want to import the EUL.

For example, to import the EUL to D:\ORACLE9i and the MS-DOS window currently displays C: , you would:

- type D: and press [Return]
- type cd \ORACLE9i and press [Return]

3. Type the following command:

```
imp <eulowner>/<password>@<dbname> file=<filename.dmp> fromuser=<old_eul_owner> touser=<new_eul_owner>
```

For example, to import an EUL owned by a database user hrmgr from a file hreul.dmp into a new user hrmgr2, you would type the following:

```
imp hrmgr2/hrpswr@HRDB file=hreul.dmp fromuser=hrmgr touser=hrmgr2
```

The EUL tables (and associated synonyms, views, and other definitions) are imported from the specified .dmp file in the D:\ORACLE9i directory.

When the import is complete, Discoverer displays the following message:

Import terminated successfully without warnings.

4. Close the command line window.
5. To avoid potential EUL consistency issues, follow the instructions below to run the eu5_id.sql script:
 - a. Start SQL*Plus (if it is not already running) and connect as the owner of the new EUL.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect hrmgr2/hrmgr2
```

where hrmgr2 is the EUL owner and hrmgr2 is the EUL owner's password.

- b.** Run the eul5_id.sql script.

For example, you might type the following at the command prompt:

```
SQL> start d:\<ORACLE_HOME>\discoverer\util\eul5_id.sql
```

where <ORACLE_HOME> is where Discoverer Administrator is installed.

The eul5_id.sql script gives a new unique reference number to the new EUL and thereby avoids any potential EUL consistency issues.

- c.** Exit the SQL*Plus session.

Notes

- Information in the EUL identifies the owner of summary tables. When you export an EUL containing summary tables from one database user and import it into a different database user, the second database user will become the owner of the summary tables. Therefore, you will need to update the EUL summary table ownership information.

To update summary table ownership information, run the eulsown.sql script located in the <ORACLE_HOME>\discoverer\util directory. When you run the script, you will be prompted for the name of the previous summary table owner and the name of the new summary table owner.

- Discoverer recognizes EULs using unique reference numbers. However, if you use the database export and import utilities to copy an EUL, the new EUL (including its reference number) will be identical to the original EUL. When EULs have the same reference number, EUL consistency issues can arise if you do both of the following:
 - if you modify objects in both the original EUL and in the new EUL
 - having modified objects in both EULs, if you then attempt to copy objects between the two EULs using the Discoverer Export Wizard and Import Wizard (or the Discoverer /export and /import commands)

To avoid potential EUL consistency issues, run the eul5_id.sql script as the owner of the new EUL. The eul5_id.sql script gives a new reference number to the new EUL and thereby avoids any potential EUL consistency issues.

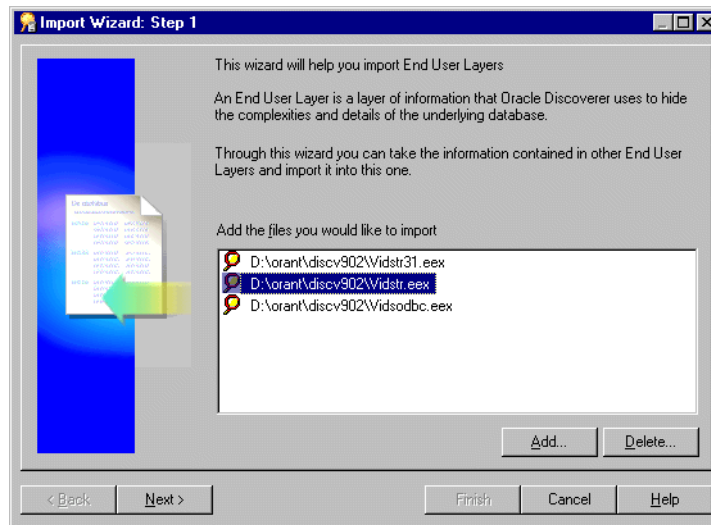
How to import EUL objects from a file using the Import Wizard

Use this option to import EUL objects (e.g. business areas, folders, hierarchies, calculations) from one EUL in order to re-use them in another EUL. You use an export file (.EEX) to update an existing EUL with selected EUL objects. For example, when applying a change to a production business area. For more information about exporting EUL objects, see ["About copying EULs and EUL objects by exporting and importing"](#).

To import EUL objects from a file using the Import Wizard:

1. Choose File | Import to display the ["Import Wizard: Step 1 dialog"](#).

Figure 3–11 *Import Wizard: Step 1 dialog*

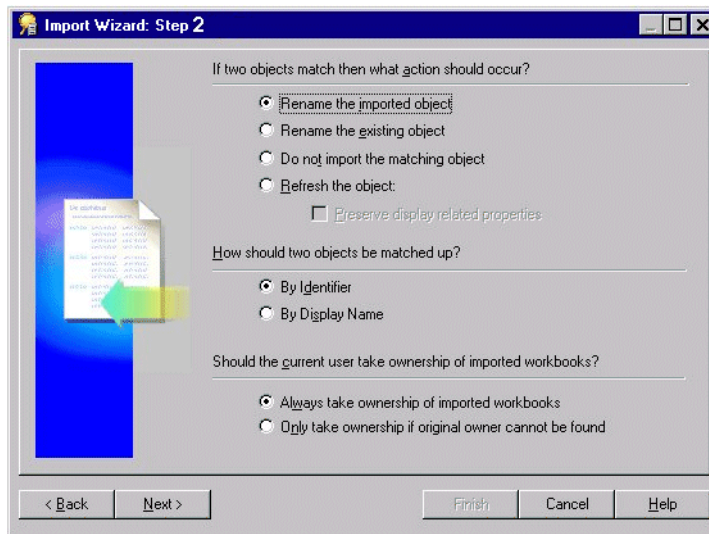


2. Click Add to display the Open dialog.
3. Locate and select one or more import files and click Open to return to the ["Import Wizard: Step 1 dialog"](#).

Selected files appear in the Import File list.

4. Click Next to display the ["Import Wizard: Step 2 dialog"](#).

Figure 3–12 Import Wizard: Step 2 dialog

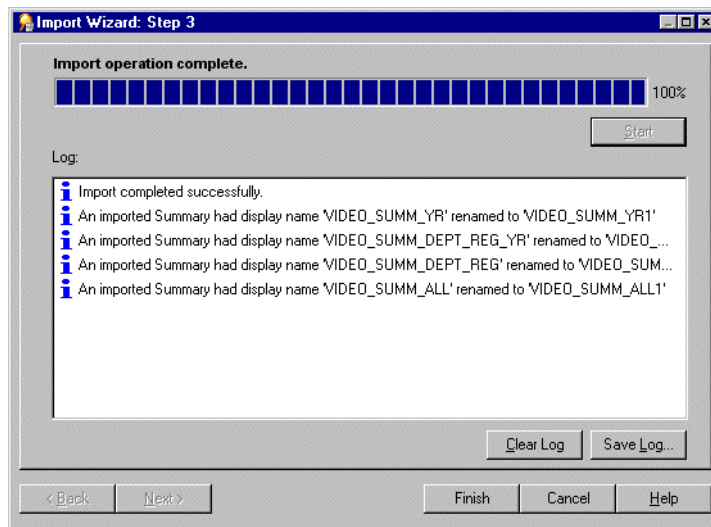


This dialog enables you to specify how Discoverer Administrator processes matching objects from another EUL. For more information about matching objects from another EUL, see ["What are identifiers?"](#).

5. Specify what action should occur if two objects match.
An object means any EUL object, for example, folder, item, calculated item.
6. Specify whether to preserve display related properties (only available if the **Refresh the object** radio button is selected).
7. Specify how you would like objects to be matched up.
8. Specify whether the current user should take ownership of imported workbooks.
9. Click Next to display the ["Import Wizard: Step 3 dialog,"](#).

This dialog enables you to start the import and monitor its status as each EUL object is processed.

10. Click Start to begin the import.

Figure 3–13 Import Wizard: Step 3 dialog

Hint: You can abort the import at any point by clicking Cancel. For example, you might want to abort the import if there are warning messages in the Import Log.

11. (optional) After a completed import, click Save log... to save the status information to a text file in a specified location.
12. Click Finish to close the "Import Wizard: Step 3 dialog".

Notes

- If you perform a complete import, the Data tab in the Workarea is updated to reflect the EUL objects imported, according to the match options that you have chosen.
- During the import of an EEX file where Discoverer Administrator cannot find joined folders a warning message is displayed in the Import Log dialog (for more information about exporting EUL objects and joins see [Chapter 21, "/export \(EUL objects\)"](#)).
- If you import EUL objects that include analytic functions, note that certain restrictions apply. For more information, see ["What are the EUL data migration scenarios with analytic functions?"](#).

Notes about EUL creation and maintenance

What are identifiers?

Identifiers are unique names that Discoverer Administrator uses to identify unique EUL objects (and workbook objects in Discoverer Plus and Discoverer Viewer).

Discoverer Administrator uses identifiers to recognize when an object imported from another EUL refers to the same business object in the EUL you are importing into. This enables customized (or patched) EUL objects to be preserved. 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 recognized as referring to the same EUL object.

Identifiers are visible in Discoverer Administrator but are hidden from Discoverer Plus users.

Typically, you will never need to alter an identifier. Indeed, changing identifiers is not advisable because it can affect the relationships between EUL objects. However, in some cases you might want to modify identifiers. For example, you might want to modify identifiers:

- to comply with strict naming conventions
- to re-create an object with a specific identifier because the object was incorrectly deleted from the EUL and needs to be re-created with the same identifier

In a future release of Discoverer, there will be a change to the valid characters that can be used in identifiers. The following characters will continue to be supported for use in identifiers in future releases of Discoverer:

- the letters A to Z in upper case
- the letters a to z in lower case
- the numbers 0 to 9
- the underscore character (i.e. _)

However, the following characters will be de-supported in future releases of Discoverer:

- the exclamation mark (i.e. !)
- the tilde symbol (i.e. ~)
- the asterisk symbol (i.e. *)

- the left and right parentheses characters (i.e. (and))
- the single quotation mark (i.e. ')
- the hyphen character (i.e. -)

For this release:

- if you create an identifier that contains a de-supported character, a warning will appear
- if you import an .eex file that has identifiers that contain de-supported characters, a warning will appear in the import log
- if you upgrade an EUL that has identifiers that contain de-supported characters, messages will be displayed indicating the identifiers that contain the invalid characters

Please modify any identifiers that use the de-supported characters so that the identifiers will be valid in future releases.

Note: To locate the identifier of a workbook or worksheet in Discoverer Plus, see the *Oracle Application Server Discoverer Plus User's Guide*.

What are the space requirements and storage parameters for a typical EUL?

The minimum default tablespace of 3MB suggested in the "[Create EUL Wizard: Step 2 dialog](#)" is based upon storage parameters that the EUL specifies when creating database objects for the EUL. If you install the tutorial, the figure of 3MB will be exceeded.

A newly created EUL has the following space requirements:

- approximately 2.8MB without tutorial data
- approximately 3.8MB with tutorial data

The amount of space that is actually used will depend on other factors, including the block size specified for the tablespace in which the EUL is created.

As an approximate guide, adding a typical business area to an EUL will increase the size of the EUL by 1MB. The more complicated the business area (e.g. the more summary folders and complex items it contains), the more space the business area will require.

A default tablespace of 10-20MB will be adequate under normal conditions, but the amount of default tablespace required is determined by the amount of metadata

that defines your EUL. Therefore, the default tablespace required could be larger, or smaller than the amount available in the tablespace that you select.

The database table storage parameters for EUL tables are as follows:

- EUL5_DOCUMENTS and EUL5_QPP_STATS are created with the following storage parameters:

```
STORAGE (  
    INITIAL 40960  
    NEXT 1024000  
    PCTINCREASE 0  
)
```

- all other EUL tables are created with the following storage parameters:

```
STORAGE (  
    INITIAL 40960  
    NEXT 81920  
    PCTINCREASE 0  
)
```

The database index storage parameters for EUL indexes are as follows:

```
STORAGE (  
    INITIAL 4096  
    NEXT 8192  
    PCTINCREASE 0  
)
```

There are two factors that might cause the EUL to use up more space:

- block size
Discoverer specifies an initial extent of 4096 for indexes, but the server will always allocate a minimum of two blocks for any segment. Therefore, if the block size is greater than 2k the indexes will take up more space than Discoverer calculates.
- tablespace minimum extent setting

When a tablespace is created it is possible to specify the minimum extent for any extent created. This minimum size overrides the initial extent size if it is greater and therefore causes the EUL objects to use up more space than Discoverer calculates.

What are the EUL data migration scenarios with analytic functions?

When you migrate EUL data using Discoverer Administrator's import and export facilities, you need to be aware of the following restrictions that relate to analytic functions (for more information about analytic functions, see the *Oracle Application Server Discoverer Plus User's Guide*):

- If you import a custom folder containing an analytic function into an EUL on an Oracle database earlier than version 8.1.6, the custom folder SQL is imported and stored in the EUL, but no items are created.
- Items or filters that contain analytic functions are not imported into an Oracle database earlier than version 8.1.6. These exceptions are reported in the Import Log (for more information, see "[How to import EUL objects from a file using the Import Wizard](#)").
- Where complex folders contain analytic functions not supported by the database version, Discoverer filters out the analytic functions.
- If you downgrade a database from an Oracle 8.1.6 database to an earlier database version you can see analytic functions grayed out, but you cannot edit them (except to delete).

Note that there are also issues to be aware of when upgrading EULs that contain analytic functions from one Discoverer release to another (e.g. when upgrading to Discoverer Version 9.0.4). For more information, see "[Notes about upgrading EULs that contain analytic functions](#)".

What is a suggested workflow for initial EUL development and ongoing maintenance?

There are typically three steps in the EUL creation and maintenance lifecycle:

- "[Step 1: Prototype and design a new EUL in a development environment](#)"
- "[Step 2: Move the new EUL from a development environment to a production environment](#)"
- "[Step 3: Modify the EUL to meet new requirements](#)"

Step 1: Prototype and design a new EUL in a development environment

As the Discoverer manager, you will usually want to create the first-cut of a new EUL in a development environment rather than on the production database. To enable you to do this, the development environment must contain the same data tables that are to be used on the production database.

Creating the EUL in a development environment enables you to develop business area design without compromising the performance of production systems.

Having created business areas, folders, and items, you can create prototype workbooks. Get these prototypes reviewed by end user representatives in the development environment. When you have agreed on the workbook definitions, save them to the development environment database.

Step 2: Move the new EUL from a development environment to a production environment

When you and the end user representatives are satisfied with the EUL, you are ready to move the EUL from the development environment to the production database.

The first time you move the EUL from the development environment to the production database, we recommend you use the database export/import tools. Take a database export of the EUL schema from the development database and import the EUL schema into the production database.

When you have imported the EUL to the production database, run the `eul5_id.sql` script to give the new EUL a unique reference number.

Having run the `eul5_id.sql` script, you can grant the entire Discoverer end user community access to the EUL.

Step 3: Modify the EUL to meet new requirements

Having rolled out the EUL to the organization, typically you will start receiving requests to modify the EUL definitions.

If you want to make changes to the EUL, we recommend you make them in the development environment and then use Discoverer's export and import tools to move the changes to the production environment. Note that any updates made to the production environment might be lost.

Although the above is the recommended way to maintain the EUL, updates might have been made in the production environment that you do not want to lose. If this is the case, follow the steps below:

1. Use Discoverer's export and import tools to move the updates from the production environment to the development environment.
Note: Changes made in the production environment from this point on might be lost. We therefore recommend no such changes are made.
2. Make the necessary changes in the development environment.
3. Use Discoverer's export and import tools to move the changes back to the production environment.

Note: Changes can now be made in the production environment again.

Creating and maintaining business areas

Creating and maintaining business areas

This chapter explains how you create and maintain business areas using Discoverer Administrator, and contains the following topics:

- "What are business areas?"
- "How to prepare to build a new business area"
- "What is the Load Wizard?"
- "How to create a business area using the Load Wizard"
- "How to open an existing business area when connecting to Discoverer Administrator"
- "How to open an existing business area when already connected to Discoverer Administrator"
- "How to copy business areas between EULs"
- "How to edit business area properties"
- "How to delete a business area"
- "How to synchronize a business area with the database"
- "Notes about business area creation and maintenance"

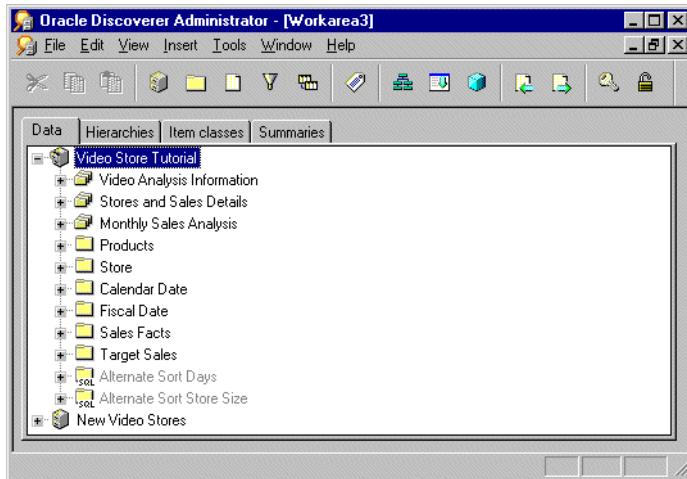
What are business areas?

Business areas are conceptual groupings of tables and/or views designed to match Discoverer end users specific data requirements. For example, an accounting department needs a business area that represents data about budgets and finance.

Alternatively, managers in a human resources department need a business area specifically for departments and employee information.

Discoverer Administrator displays a business area as a file cabinet on the Data tab of the Workarea. You can open a business area to display its folders and items (for more information, see [Chapter 5, "What are folders?"](#) and [Chapter 8, "What are items?"](#)).

Figure 4–1 Workarea: Data tab displaying business areas, folders and items



How to prepare to build a new business area

You create a business area in Discoverer Administrator using the Load Wizard (for more information, see [Chapter 4, "What is the Load Wizard?"](#)). Before you start the Load Wizard, prepare by sketching out the business area design. Keep in mind what will be useful to the Discoverer end users whose purposes the business area will serve.

Use the following guidelines:

- Interview your users for a clear understanding of their requirements. Use the list of questions in [Chapter 2, "What are the prerequisites for using Oracle Discoverer?"](#) as a guideline for your user interviews.
- Identify the data source and have a clear understanding of its design.
- Identify which tables, views, and columns are required. Identify those that are likely to be included in multiple business areas. For example, the Employee folder might need to be in both the Sales and Human Resources business areas.
- Map out the necessary joins and determine whether they exist in the database or will have to be created by you using Discoverer Administrator. Joins might be predefined in the database with primary/foreign key constraints, or column names in different tables may match in ways that trigger sensible join conditions. For more information, see [Chapter 9, "What are joins?"](#).
- Identify security issues and access privileges. Include the user names the business area is to serve.

Keep in mind that your design is likely to change as you add the objects that will make the business area a useful and efficient analysis tool. The sketch provides a framework for you to modify and build upon.

What is the Load Wizard?

The Load Wizard provides a user-friendly interface to create a business area and enables you to quickly:

- name and describe the business area
- load metadata into the business area
- and automatically:
 - format data
 - create joins from existing relationships between tables

Note: When doing a bulk load from an Oracle9i database, you can use also create joins from existing relationships between views (e.g. constraints on views).

- create summaries
- create date hierarchies against date items
- create default aggregates for datapoint items
- create lists of values for items
- sort folders and items

How to create a business area using the Load Wizard

If you are already connected to Discoverer Administrator

1. Choose Insert | Business Area | From Database...then follow step 2 below.

If you have just connected to Discoverer Administrator

1. Click **Create a new business area** (conditional option, displayed only when connecting to Discoverer Administrator).

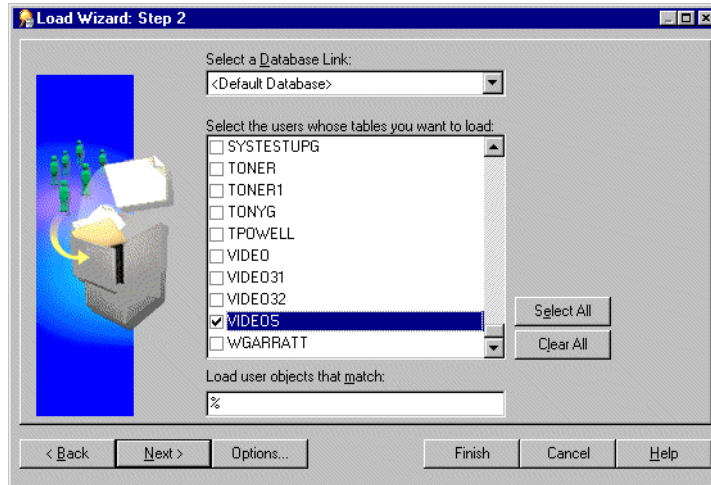
Note: The Load Wizard starts automatically when you connect to Discoverer Administrator and your username has access to an EUL.

2. Select one of the following options to specify where you want to load the meta-data from and click Next to display the "[Load Wizard: Step 2 dialog](#)":
 - On-line dictionary (for more information, see "[Loading from the online dictionary](#)")
 - Gateway (for more information, see "[Loading from a Gateway](#)")

For more information about the online dictionary and Gateway see the "[Load Wizard: Step 1 dialog](#)".

Loading from the online dictionary

The "[Load Wizard: Step 2 dialog](#)" enables you to define the user objects to load into your new business area.

Figure 4–2 Load Wizard: Step 2 dialog

1. Select the database link from the **Select a Database Link** drop down list.
This displays the default database for the current user ID. The drop down list displays only the databases that the current user ID can connect to, based on any private or public database links that the user has access to.
2. Select a check box (for each database user) to load the data dictionary definitions of the database objects owned by each selected database user, into the business area.
The database users displayed are those that exist on the selected database.
3. (optional) Specify the pattern that a user's objects must match to be loaded into the business area in the field **Load user objects that match**.
The % symbol is displayed by default and is a wildcard that matches any character or string of characters. To reduce the number of schema objects that can be loaded from the database, use the wildcard in combination with other characters as follows:

To load schema objects	Enter what?
Find all schema objects	%
Find all schema objects beginning with D	D%

To load schema objects	Enter what?
Find all schema objects ending with AND	%AND
Find all objects beginning with A and having a five letter name (each underscore represents a letter).	A _ _ _ _ _

4. (optional) Click Options to specify the type of tables to be loaded (for further information, see the ["Online Dictionary Options dialog"](#)).

For example, whether public or private, or whether owned by or accessible to the users you select.

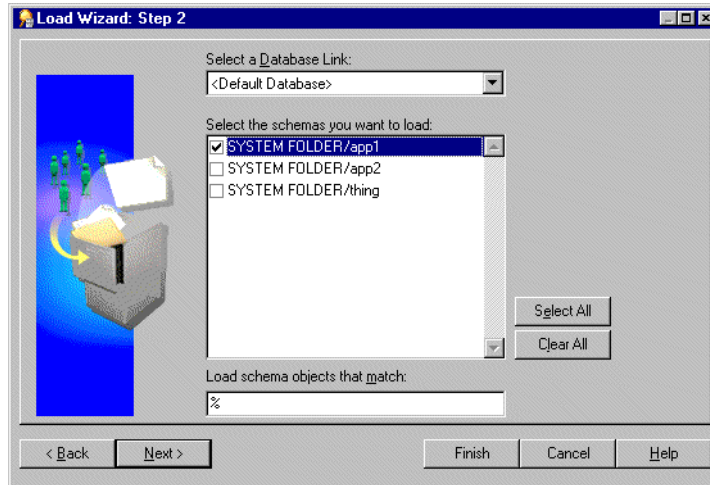
By default, the Load Wizard will load only:

- tables owned by the users specified
- private tables

5. Click Next and go to ["Selecting tables and views"](#).

Loading from a Gateway

The ["Load Wizard: Step 2 dialog"](#) enables you to define the schema objects to load into your new business area.

Figure 4–3 Load Wizard: Step 2 dialog

1. Select the database link from the **Select a Database Link** drop down list.
The **Select a Database Link** field displays the default database for the current user ID. The drop down list displays only the databases that the current user ID can connect to.
2. Select a check box for each schema that you want to load into the business area.
The schemas displayed are those that exist on the selected database.
3. Specify the pattern that schema objects must match to be loaded into the business area (in the **Load schema objects that match** field) and click Next.
The % symbol is displayed by default and is a wildcard that matches any character or string of characters. To reduce the number of schema objects that can be loaded from the database, use the wildcard in combination with other characters as follows:

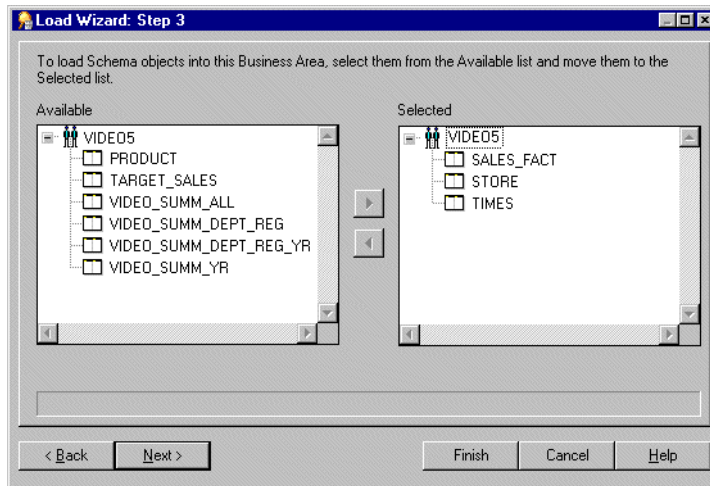
To load schema objects	Enter what?
Find all schema objects	%
Find all schema objects beginning with D	D%
Find all schema objects ending with AND	%AND

To load schema objects	Enter what?
Find all objects beginning with A and having a five letter name (each underscore represents a letter).	A _ _ _ _ _

Selecting tables and views

The "Load Wizard: Step 3 dialog" enables you to select tables and views (schema objects) to load into the business area.

Figure 4–4 Load Wizard: Step 3 dialog



The **Available** list displays a hierarchical list of users (via the on-line dictionary) or schemas (via the gateway) and the tables and views that are available to load into the business area. You can expand and collapse levels of the hierarchy by clicking the + and - signs.

To select tables or views to load into the business area:

1. Move the tables or views that you want to load into the business area, from the **Available** list to the **Selected** list.

You can select more than one table or view at a time by holding down the Ctrl key and clicking another table or view.

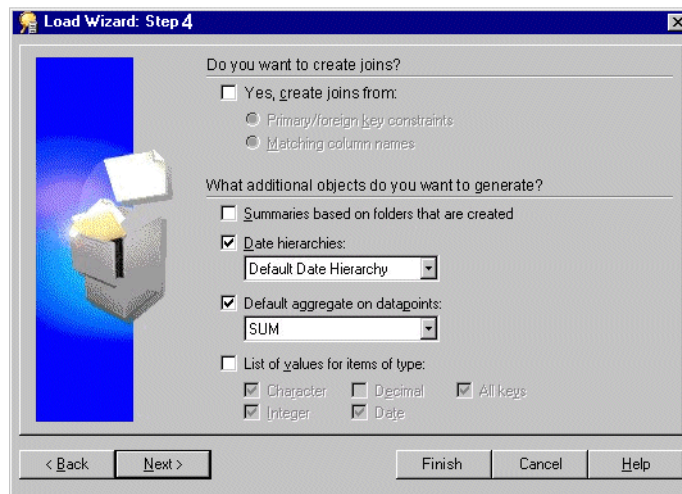
2. Click Next to display the "Load Wizard: Step 4 dialog" where you can specify how Discoverer Administrator creates joins and which additional objects Discoverer Administrator generates for the new business area.

Go to "Specifying what Discoverer Administrator generates for the business area".

Specifying what Discoverer Administrator generates for the business area

The "Load Wizard: Step 4 dialog" enables you to decide what Discoverer Administrator generates for the business area, in terms of joins, summary folders, date hierarchies, default aggregates on datapoints and lists of values.

Figure 4-5 Load Wizard: Step 4 dialog



To specify what Discoverer Administrator generates for the business area:

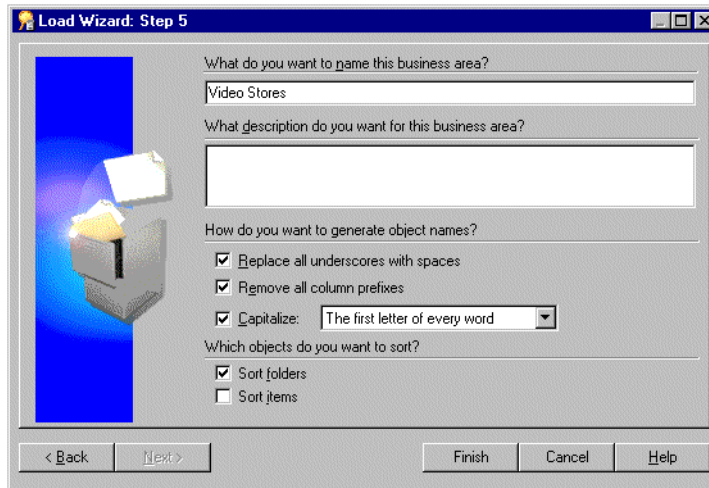
1. Select whether you want Discoverer Administrator to create joins and if so select an appropriate join option.
2. Select the additional objects you want to generate (for reference information about this dialog, see the "Load Wizard: Step 4 dialog").
3. Click Next to display the "Load Wizard: Step 5 dialog".

Go to "Naming the business area, specifying object name and sorting options".

Naming the business area, specifying object name and sorting options

The "Load Wizard: Step 5 dialog" enables you to enter a name and description and specify how Discoverer Administrator generates object names and which objects to sort for the business area.

Figure 4–6 Load Wizard: Step 5 dialog



To name the business area and specify the folder and item, naming and sorting options:

1. Specify a name, description and select the check boxes for how you want Discoverer Administrator to generate folder and item names and whether you want to sort folders and/or items for the business area and click Finish.
2. (conditional step) This step (and the next step) applies only if you selected the check box, **Summaries based on folders that are created**, in the Load Wizard: Step 4.

Note: Discoverer Administrator displays the Recommended Summaries dialog that provides information about the summary folders that Automated Summary Management (ASM) will create for you (for more information about summary folders, see "Summary Wizard (ASM): Recommended Summaries dialog" and Chapter 13, "What are summary folders?").

3. Click Create to confirm your choice.

Discoverer Administrator displays a progress indicator while it generates your new business area (and summaries, if appropriate). When finished, the progress indicator disappears and the new business area is displayed on the "[Workarea: Data tab](#)".

Note: If you loaded your metadata from Oracle Designer, you must refresh the business area before it can be used. For more information, see "[How to synchronize a business area with the database](#)".

Important Note: User Access

A new business area (and the data it contains), can only be accessed by the user ID that was used to create it. For more information about how to grant access privileges to other user IDs, see [Chapter 6, "How to specify a user or role \(responsibility\) that can access a business area"](#).

How to open an existing business area when connecting to Discoverer Administrator

Note: The Load Wizard starts automatically when you connect to Discoverer Administrator.

To open an existing business area when connecting to Discoverer Administrator:

1. Click **Open an existing business area** in the "[Load Wizard: Step 1 dialog](#)" to display all the business areas in the EUL of the database to which you are connected.
2. Select a check box for each business area that you want to open or click **Select All** to select all the business areas.
3. Click **Finish** to open the selected business area(s).

How to open an existing business area when already connected to Discoverer Administrator

To open an existing business area when already connected to Discoverer Administrator:

1. Choose **File | Open** to display the "[Open Business Area dialog](#)".
2. Move the business areas that you want to open from the **Available** list to the **Selected** list.

You can select more than one business area at a time by holding down the Ctrl key and clicking another business area.

3. Click OK to open the selected business area(s).

How to copy business areas between EULs

To copy a business area from one EUL to another (e.g. from a development system to a production system) you must first export the business area from the first EUL then reconnect to the second EUL and import the export file for the business area into the second EUL:

1. To export a business area to a file, carry out the steps outlined in the following task using the link below:
 - [Chapter 3, "How to export selected business areas using the Export Wizard"](#).

Once you have completed the above task, go to the next step below.

2. Choose File | Connect.
3. Connect to the EUL that you want to move the business area into.
4. Choose File | Import.
5. To import the business area (exported in step 1, above) into the current EUL, carry out the steps outlined in the following task using the link below:
 - [Chapter 3, "How to import EUL objects from a file using the Import Wizard"](#).

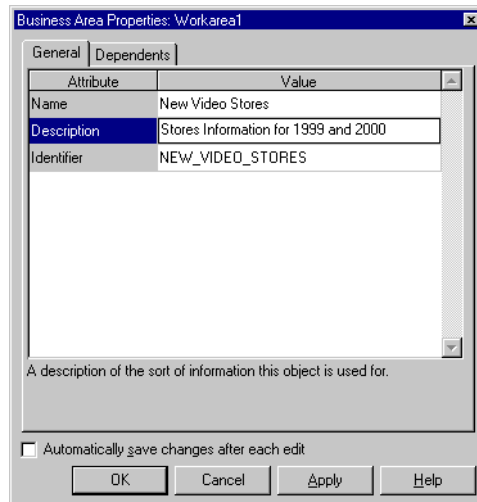
Notes

The Export option exports the definitions for the business area only. It does not export the database, EUL tables, workbooks, or database objects referenced by the business area definitions.

How to edit business area properties

To edit the properties of a business area:

1. Click a business area on the "[Workarea: Data tab](#)" and choose Edit | Properties to display the "[Business Area Properties dialog](#)".

Figure 4–7 Business Area Properties dialog

2. Set the business area name and description as required.

Warning: It is not advisable to change an identifier as it can affect the relationships between EUL objects. Do not change the identifier unless you understand the impact of the change. For example, if you are developing EUL patches in a test environment to be imported to a production environment.

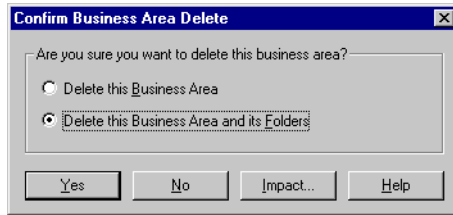
3. Click OK to confirm any changes made.

How to delete a business area

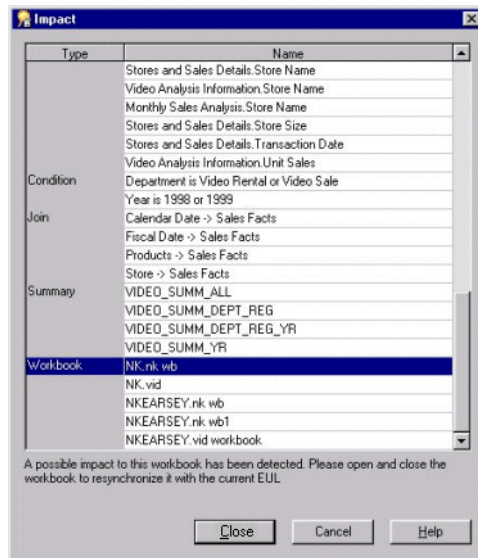
To delete a business area:

1. Click a business area on the "[Workarea: Data tab](#)" and choose Edit | Delete to display the "[Confirm Business Area Delete dialog](#)".

Figure 4–8 Confirm Business Area Delete dialog



2. Specify the scope of deletion that you require:
 - Select the **Delete this Business Area** radio button to remove the business area but not its folders, they remain in the EUL.
Note: Folders can exist in the EUL but not belong to a business area (orphan folders).
 - Select the **Delete this Business Area and its Folders** radio button to remove the business area and all of the folders contained in that business area.
Note: Folders that are part of another business area are not removed.
Note: This is the default option and is usually recommended.
3. (optional) To see the objects that might be affected by deleting this business area:
 - a. Click Impact to display the "Impact dialog".

Figure 4–9 *Impact dialog*

The Impact dialog enables you to review the other EUL objects that might be affected when you delete a business area.

Note: The Impact dialog does not show the impact on workbooks saved to the file system (i.e. in .dis files).

- b. (optional) Select a row to view text at the bottom of the list, indicating what affect the current action will have on the EUL object.
 - c. When you have finished reviewing the impact of deleting the business area, click Close to close the Impact dialog.
4. Click Yes to delete the selected business area, based on the choices you have made.

How to synchronize a business area with the database

You use the Refresh command to synchronize a business area with the source dictionary whenever the database schema is changed.

Examples of typical database modifications might include the following:

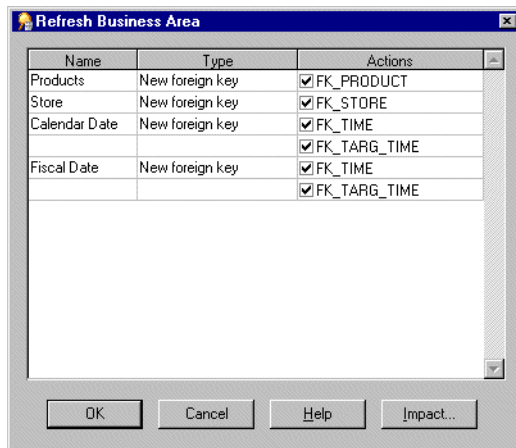
- adding tables
- adding columns
- adding joins
- changing the ownership of a table

To synchronize a business area with the database:

1. Select the business area that you want to refresh in the "Workarea: Data tab".
2. Choose File | Refresh to open the "Refresh Wizard dialog".
3. Select one of the following **Refresh business areas from** options:
 - On-line dictionary
 - Gateway
4. Click Finish to begin the refresh business areas process.

Where any objects have changed since the last refresh Discoverer Administrator displays the "Refresh Business Area dialog".

Figure 4–10 Refresh Business Area dialog



The Refresh Business Area dialog displays the:

- name of the object that has changed since the last refresh
- type of change that has occurred to objects since the last refresh

- effect that the refresh will have on the object
5. To decide whether you want to refresh each object:
 - select a check box next to each object you want to refresh
 - clear a check box next to each object you do not want to refresh
 6. (optional) You can review objects that will be deleted when you refresh this business area. To see the potential impact of the refresh:
 - a. Click Impact to display the "[Impact dialog](#)".
 - b. When you have finished reviewing the impact of refreshing this business area, click Close to close the Impact dialog.
 7. Click OK for Discoverer Administrator to refresh the business area or selected objects.

Notes about business area creation and maintenance

Why might a business area (or folders within it) not be visible to a user?

Having created a business area, it is possible that a Discoverer end user might not be able to see the business area (or folders within the business area). For a user to see a business area or folders within it, the following conditions must all be met:

- The user must have access to the EUL. If the user is not the EUL owner, either the EUL must be publicly accessible or the user must be granted explicit access to the EUL. Also make sure that the user is accessing the EUL in which the business area was created.
- The user must have access to the business area. For more information about granting access to business areas, see:
 - [Chapter 6, "How to specify a user or role \(responsibility\) that can access a business area"](#)
 - [Chapter 6, "How to specify the business areas a user or role \(responsibility\) can access"](#)
- The user must have database SELECT access to the tables or views on which the folders in the business area are based.

Hint: If you are not sure whether a particular user has access to a specific database table or view, log in to SQL*Plus as the user and type:

```
select count (*) from <ownername>.<objectname>;
```

where:

- <ownername> is the database username of the owner of the table or view
- <objectname> is the name of the table or view

If the user does not have access to the database table or view, an error message is displayed.

- The folders in a business area must be based on current database table or view definitions. If the table or view definition has changed, you must refresh the business area (for more information, see ["How to synchronize a business area with the database"](#)). For example, an end user might not be able to see a folder if an underlying column that the folder depends on was deleted from the table. To enable the Discoverer end user to see a folder in this, you must refresh the business area containing the folder.

Creating and maintaining folders

Creating and maintaining folders

This chapter explains how you create and maintain folders using Discoverer Administrator, and contains the following topics:

- "What are folders?"
- "What are simple folders?"
- "What are complex folders?"
- "What are custom folders?"
- "About dependencies between folders"
- "About sharing folders across business areas"
- "How to create simple folders from the database"
- "How to create complex folders"
- "How to create custom folders"
- "How to edit folder properties"
- "How to edit a custom folder's SQL statement"
- "How to delete folders from a business area"
- "How to assign folders to a business area"
- "How to assign a folder to multiple business areas"
- "How to view orphaned folders in the EUL"
- "How to remove an orphaned folder from the EUL"
- "How to sort folders in a business area"

- ["How to sort items in a folder"](#)
- ["How to re-order folders in a business area"](#)
- ["How to validate folders in a business area"](#)

What are folders?

A Discoverer folder is a representation of result set data. The visual concept of a folder in Discoverer is analogous to a directory in Windows where folders are the containers and items are the files held in the folders. A Discoverer folder represents a group of related items. Discoverer end users select items from one or more folders to get information from the database. As the Discoverer manager, it is your responsibility to create suitable folders to enable Discoverer end users to access the information they need.

There are three types of folder:

- simple folders, which contain items based on columns in a single database table or view
- complex folders, which can contain items based on columns from multiple database tables or views
- custom folders, which are based on SQL statements

To the Discoverer end user, the type of a particular folder is immaterial. Whether a folder is simple, custom, or complex is only important to the Discoverer manager. Even in Discoverer Administrator, there is very little difference in the behavior of these different types of folders. Folders can include items, calculated items, joins, conditions, item classes, and hierarchies. Items in a folder can be used in summary folders and to define hierarchies.

Discoverer end users work with folders within the context of business areas.

As the Discoverer Manager, you can assign a folder to one or more business areas. Note that a folder has a single definition, regardless of the number of business areas to which you assign it.

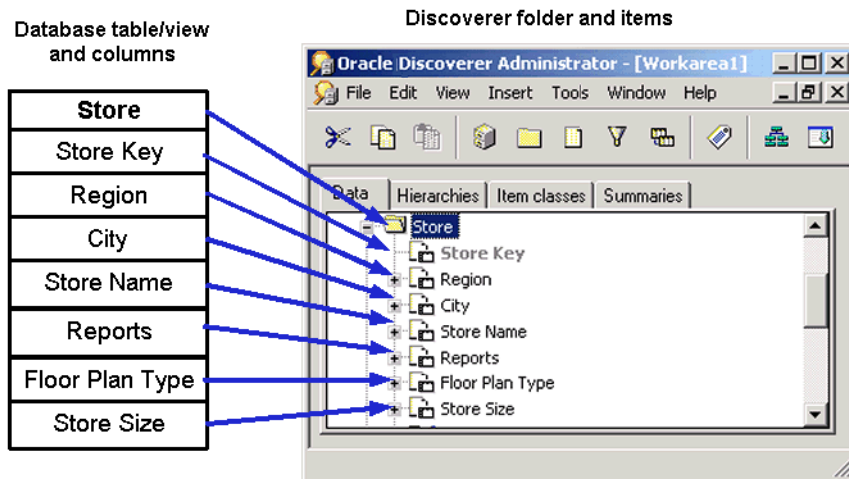
You can remove a folder from all business areas without deleting it from the EUL. Folders that exist in the EUL but which are not currently assigned to a business area are referred to as orphan folders.

What are simple folders?

Simple folders contain items based on columns in a single database table or view. Items in a simple folder can also represent calculations on other items in the folder.

You create a simple folder by loading a table definition or table metadata from the database or a gateway.

Figure 5–1 How Discoverer Administrator represents a table/view



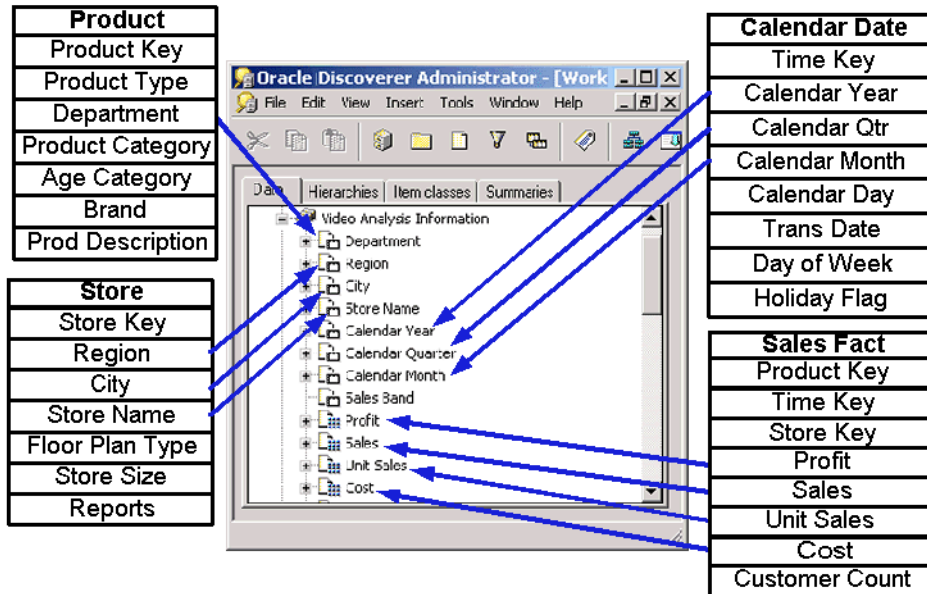
What are complex folders?

Complex folders contain items from one or more other folders. Complex folders enable you to create a combined view of data from multiple folders. This is analogous to a view in the database.

Using a complex folder enables you to simplify the business area without creating a new database view. For example, you can create a complex folder called Dept-Emp which has columns from both the DEPT and EMP tables. The user can select from one folder instead of two.

For two items from different folders to belong to the same complex folder, a join condition must exist between the two folders. For more information about joins, see [Chapter 9, "What are joins?"](#).

Figure 5–2 How a complex folder groups items from multiple source tables



What are the benefits of using complex folders instead of database views?

You could produce the same result set using a database view instead of a complex folder. However, using a complex folder instead of a database view offers several advantages. You can:

- create a complex folder without the database privileges required to create a database view
- control access to a complex folder using the folder's business area
- manage complex folders entirely within Discoverer Administrator, whereas database views can be complicated to maintain
- improve query performance by taking advantage of Discoverer's ability to optimize the SQL it generates for items in complex folders

What are custom folders?

Custom folders are folders based on a SQL statement which could include SET operators (e.g. UNION, CONNECT BY, MINUS, INTERSECT) or a synonym that you type directly into a dialog.

By defining a custom folder, you can quickly create a folder that represents a complicated result set. When you save the custom folder, Discoverer Administrator creates items using the 'Select' part of the SQL statement you have entered.

In Discoverer Plus, there is no distinction between a custom folder and a simple folder. A Discoverer end user can use a custom folder to build queries in the same way as any other type of folder.

What are the differences between custom folders and simple folders?

Custom folders are very similar to simple folders, with the following exceptions:

Area	Simple Folder	Custom folder
Refresh	Simple folders are refreshed when the business area is refreshed	Custom folders are refreshed by editing and validating the existing SQL
Item properties	Items in simple folders have an Item Formula property.	Items generated in a custom folder do not have an Item Formula property. In other words, the only way to edit the formula of an item in a custom folder is to edit the SQL for the whole folder.
Folder properties	Simple folders have Database, Owner, and Object properties. Simple folders do not have a Custom SQL property.	Custom folders do not have Database, Owner, and Object properties. Custom folders have a Custom SQL property that contains the SQL statement used to generate the custom folder.

Examples of custom folders

This section consists of the following examples:

- ["Example 1: Synonyms in a custom folder definition"](#)
- ["Example 3: Set Operator in a custom folder definition"](#)

- "Example 4: Subquery in a custom folder definition"
- "Example 5: Optimizer hint in a custom folder definition"
- "Example 6: CONNECT BY Clause in a custom folder definition"
- "Example 7: Column Expression in a custom folder definition"
- "Example 8: Using a custom folder to improve LOV performance"

Example 1: Synonyms in a custom folder definition

```
SELECT BRAND FROM PROD
```

In this example, PROD is a synonym that points to the product table.

The underlying table or view that the synonym points to, can be switched without the need to change the custom folder definition in Discoverer (i.e. providing that the column names of the table/view that the synonym refers to, do not change).

Example 2: Database link in a custom folder definition

```
SELECT BRAND FROM PRODUCT@DATABASELINK
```

In this example, PRODUCT is a table in another database, and DATABASELINK is the database link to the other database.

Example 3: Set Operator in a custom folder definition

```
SELECT 'COMPANY1' COMPANY, ENAME, SAL FROM EMP@HQ  
UNION  
SELECT 'COMPANY2', COMPANY, ENAME, SAL FROM EMP@REGIONA
```

In this example, HQ and REGIONA are database links for remote databases. The result set is the union of all employees with a column named COMPANY1 to show which company they are from.

Example 4: Subquery in a custom folder definition

```
SELECT ENAME, SAL FROM EMP  
WHERE SAL > (SELECT AVG (SAL) FROM EMP)
```

In this example, the (SELECT AVG (SAL) FROM EMP) subquery is included in the folder definition.

Example 5: Optimizer hint in a custom folder definition

```
SELECT /*+ FULL(scott_emp) PARALLEL (scott_emp, 5) */
```

```
ename  
FROM scott.emp scott_emp;
```

In this example, the `PARALLEL` hint overrides the degree of parallelism specified in the emp definition.

Example 6: CONNECT BY Clause in a custom folder definition

```
SELECT EMPNO, ENAME, JOB FROM EMP  
CONNECT BY PRIOR EMPNO=MGR  
START WITH KING
```

In this example, the `CONNECT BY` clause defines a hierarchical relationship in which the `EMPNO` value of the parent row is equal to the `MGR` value of the child row (i.e. it filters each row where the `PRIOR` condition is true).

Example 7: Column Expression in a custom folder definition

```
SELECT ENAME, SAL*12+NVL(COMM,0) ANNUAL_SALARY  
FROM EMP
```

In this example, the alias `ANNUAL_SALARY` is required on the `SAL*12+NVL(COMM,0)` expression.

Although a custom folder can contain any valid SQL statement, any column expressions must be aliased in the same way that a SQL view definition would be aliased. In these cases, the alias will be used as the item name.

No alias is required on simple column expressions like `ENAME`.

Example 8: Using a custom folder to improve LOV performance

You can use a custom folder to create a list of values for an item in a folder where you know that the list values in the database will not change. This is more efficient than running a query using a list of values defined against an item in a folder that has a much larger number of rows than the number of distinct values.

If you have a smaller number of static values you can use a custom folder to create a local list of values within the End User Layer.

For example, if you want a list of values for North, South, East and West, create a custom folder called `Region_lov` and enter the following SQL:

```
SELECT 'NORTH' REGION FROM sys.dual  
UNION  
SELECT 'SOUTH' REGION FROM sys.dual
```

```
UNION
SELECT 'EAST' REGION FROM sys.dual
UNION
SELECT 'WEST' REGION FROM sys.dual
```

The above SQL creates one item called Region that you can use as a list of values to significantly improve performance.

For more information about lists of values, see [Chapter 8, "What are lists of values?"](#).

About dependencies between folders

If you copy an item from a simple folder and paste the item into the same simple folder, the new item is completely separate from the original item and has a new name generated (e.g. region1). Changes in either item are never reflected in the other item.

If you copy an item from a simple folder and paste the item into a complex folder, the new item in the complex folder is still related to the original item. You can rename the new item and change its properties without the changes affecting the original item. However, the new item is dependent on the original item because the formula of the new item references the name of the original item. If you modify the formula of the original item, the data returned by the new item will also change. Similarly, if you delete the original item, the new item is also deleted because its formula property references the original item.

For example, if you copy the item 'Region' from the Store table and paste it into the complex folder 'Video Analysis Information' and then edit the properties of the copied item 'Region' in the complex folder 'Video Analysis Information'. You will notice that the Formula property of the Region item is itself a calculated item that uses the calculation Store.Region. The calculation Store.Region indicates that the item is dependant on the item Region in the folder Store. The conditions that were described in the previous paragraph will apply to the Region item that you copied into the complex folder 'Video Analysis Information'.

You can view a list of the dependencies for an item on the Dependencies tab of the Item Properties dialog.

A folder represents a set of data that can be returned from the database. If you apply a mandatory condition to a folder (e.g. where Year=2000), the set of data that can be returned will change. A complex folder built using this folder will reflect the restricted set of data of the source folder. If you later remove the mandatory condition from the source folder, the change is reflected in the complex folder.

About sharing folders across business areas

Data that is important to one department is often useful to another. Discoverer Administrator therefore enables you to share a folder that you have created in one business area with other business areas. For example, you might want to share a Sales Facts folder that includes columns for Income and Costs in the business areas you create for both the Marketing Department and the Accounting Department.

If you make changes to a folder in one business area, the changes are made to the folder in every business area that uses the folder.

How to create simple folders from the database

To create simple folders from the database in an existing business area:

1. On the "[Workarea: Data tab](#)", select the business area in which you want to create a simple folder.
2. Choose Insert | Folder | from Database to display the "[Load Wizard: Step 1 dialog](#)".
3. Click **On-line Dictionary** to specify the location of the table/view on which you want to base the simple folder.
4. Click Next to display the "[Load Wizard: Step 2 dialog](#)".
5. Specify the database that owns the database table/view on which you want to base the simple folder.
6. Select a radio button for a database user to base the simple folder on.
7. Click Next to display the "[Load Wizard: Step 3 dialog](#)".
8. Expand the + symbol in the **Available** list to see the objects owned by the user.
9. Move the object on which you want to base the simple folder from the **Available** list to the **Selected** list.
10. Do one of the following:
 - click Next to modify the default settings for the simple folder in the "[Load Wizard: Step 4 dialog](#)"
 - click Finish to create the simple folder based on the table you specified using default settings
11. If you clicked Next in the previous step, do one of the following:

- click Next to modify the default settings for the simple folder in the ["Load Wizard: Step 5 dialog"](#)
 - click Finish to create the simple folder based on the table you specified using default settings
12. If you clicked Next in the previous step, click Finish to create the simple folder based on the table you specified using the settings you specified.

How to create complex folders

To create a complex folder:

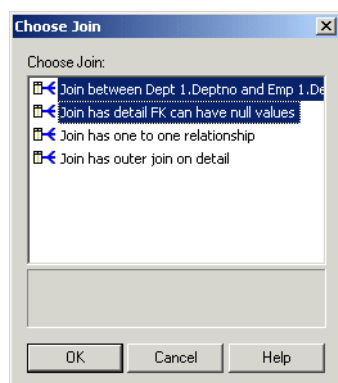
1. On the ["Workarea: Data tab"](#), select the business area in which you want to create a complex folder.
2. Choose Insert | Folder | New to create a new complex folder.
3. Click the new folder's icon on the Data tab and choose Edit | Properties to display the ["Folder Properties dialog"](#).
4. (optional) Specify a more descriptive name for the new folder in the **Name** field.
5. (optional) Specify a description for the new folder in the **Description** field.
6. Close the Folder Properties dialog if it is open.
7. On the ["Workarea: Data tab"](#), Drag an item from any folder in any open business area to the new folder.

Hint: You might find it easier to drag items between folders if you have two Workareas open. To open a second Workarea, choose Window | New Window.

8. Drag the items into the new folder as required.

When you add an additional item to a complex folder, the folders that it comes from must be joined to the folder of at least one other item already in the complex folder. If this is not the case, Discoverer Administrator will display an error dialog.

If you select items from two folders that are joined using more than one join, Discoverer displays the Choose Join dialog. For more information, see ["About joining two folders using more than one join"](#).

Figure 5–3 Choose Join dialog

9. (optional) Select one or more joins and click OK.

Discoverer creates a complex folder.

Notes

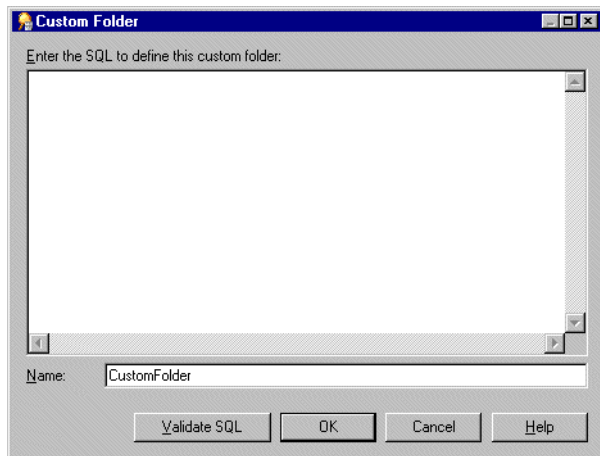
- If you include an item from a simple folder in a complex folder, the new item in the complex folder is not totally independent of the original item. For more information, see "[About dependencies between folders](#)".

How to create custom folders

To create a custom folder:

1. On the "[Workarea: Data tab](#)", select a business area (or any object within a business area).
2. Choose Insert | Folder | Custom to display the "[Custom Folder dialog](#)".

Figure 5–4 Custom Folder dialog



3. Specify the SQL statement on which the custom folder will be based.
You can include comments as separate lines within the SQL statement by starting the comment line with two dash characters (i.e. --).
4. Specify the name of the custom folder in the **Name** field.
5. Click Validate SQL to ensure you have entered valid SQL.
6. Click OK to validate the SQL statement and save the custom folder.

Notes

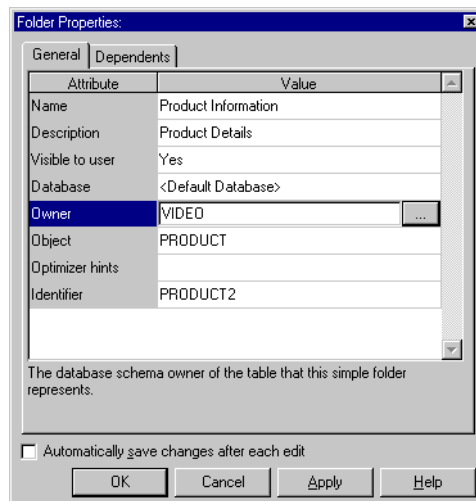
- To enable you to create custom folders before the underlying database objects have been created or made available, Discoverer Administrator permits you to save a custom folder even if the SQL is invalid. Note that Discoverer end users will not be able to query the database object until the SQL is valid.
- For examples of SQL statements you might enter, see ["Examples of custom folders"](#).
- Where the SQL references multiple database objects, you must define joins between those objects. For more information, see [Chapter 9, "Creating and maintaining joins"](#).

How to edit folder properties

To edit the properties of a folder:

1. On the "Workarea: Data tab", click on the folder to select it.
You can select more than one folder by pressing the Ctrl key and clicking another folder.
2. Choose Edit | Properties to display the "Folder Properties dialog".

Figure 5–5 Folder Properties dialog



If you selected multiple folders, the Folder Properties dialog displays a value for each property that has the same value for all of the selected folders. If the value for a particular property is not the same for all of the selected folders, no value is displayed for that property.

3. Make the changes as required.
Hint: To save the changes you make as you make them, select the **Automatically save changes after each edit** check box. With this option selected, you do not have to click OK or Apply.
4. Click OK to save the changes you have made.

Notes

- You can assign a folder to more than one business area. However, there is only ever one definition of the folder in the EUL and that definition is shared by all the business areas to which the folder is assigned. If you modify the folder definition, the change is reflected in all the business areas to which the folder is assigned. For more information, see ["About sharing folders across business areas"](#).
- You can change a folder's name at any time because Discoverer Administrator identifies folders using unique identification labels called identifiers (for more information, see [Chapter 3, "What are identifiers?"](#)). Changing a folder's name does not alter the structure of the business area. However, folder names must be unique within the EUL. Note also that item names must be unique within a particular folder.
- You can change the database user that owns the database object on which a simple folder is based without changing the name of the object itself. For example, you might want to do this when moving from a development to a production environment. To change the database user, click the button beside the **Owner** field to display the ["Choose user dialog"](#) and specify the new database user.
- You can base a simple folder on a table/view without specifying the database user that owns that table/view. You might want to do this:
 - to enable different Discoverer Plus users to access database tables/views that have the same name but which exist in their own database users (e.g. for Oracle Applications users)
 - to create/maintain an EUL for which the tables or table owners are not yet available
 - to create/maintain an EUL to which you as the Discoverer Manager do not have access
 - to move the EUL between different databases where the person who owns the data is different

To base a simple folder on a table/view without specifying the database user name, clear the **Owner** field. When the **Owner** field is left blank, Discoverer Administrator generates SQL that does not include the owner before the table name.

For example, if the **Owner** field contains the name of the schema that owns the table/view, the generated SQL statement might be:

```
select <column> from <owner>.<table>
```

If you clear the **Owner** field, the generated SQL statement would be:

```
select <column> from <table>
```

If the object is not in the current schema, a warning is displayed.

How to edit a custom folder's SQL statement

To edit a custom folder's SQL statement:

1. On the ["Workarea: Data tab"](#), select the custom folder.
2. Choose Edit | Properties to display the ["Folder Properties dialog"](#).
3. Click the Custom SQL field to display the ["Custom Folder dialog"](#).

Hint: You can resize the Custom Folder dialog to view more of the SQL statement.

4. Make changes as required.
5. Click Validate SQL to ensure you have entered valid SQL.
6. Click OK to validate the SQL statement and save the custom folder.

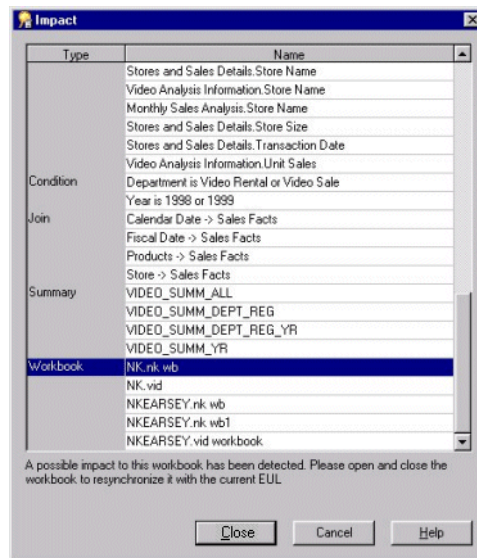
Notes

- To enable you to create custom folders before the underlying database objects have been created or made available, Discoverer Administrator permits you to save a custom folder even if the SQL is invalid. Note that end users will not be able to query the object until the SQL is valid.
- Where the SQL references multiple database objects, you must define joins between those objects. For more information, see [Chapter 9, "What are joins?"](#)
- Discoverer Administrator analyzes the modified SQL statement to assess the changes you have made. If Discoverer Administrator determines that the changes will affect existing items or create new items, Discoverer Administrator displays the ["Impact dialog"](#) that shows you each item that is affected. Use the Impact dialog to help you decide whether to confirm the changes you have made, make further changes, or abandon the edit.

How to delete folders from a business area

To delete a folder from a business area:

1. On the "[Workarea: Data tab](#)", select the folder you want to delete.
You can select more than one folder by pressing the Ctrl key and clicking another folder.
2. Choose Edit | Delete to display the "[Confirm Folder Delete dialog](#)".
The Confirm Folder Delete dialog enables you to choose how you want to delete the folder and to assess the impact of deleting the folder.
3. Specify how you want to delete the folder by selecting one of the following radio buttons:
 - **Delete from this Business Area**
Removes the selected folder from the current business area. Note that this option does not delete the folder from the EUL. If the folder is not shared by any other business area, it becomes an orphan folder.
 - **Delete from the End User Layer**
Removes the selected folder from all business areas that contain that folder. Note that this option also completely removes the folder definition from the EUL.
4. (optional) To see the objects that might be affected by deleting this folder:
 - a. Click Impact to display the "[Impact dialog](#)".

Figure 5–6 Impact dialog

The Impact dialog enables you to review the other EUL objects that might be affected when you delete a folder.

Note: The Impact dialog does not show the impact on workbooks saved to the file system (i.e. in .dis files).

- b. (optional) Select a row to view text at the bottom of the list, indicating what affect the current action will have on the EUL object.
- c. When you have finished reviewing the impact of deleting the folder, click Close to close the Impact dialog.

5. When you are certain that you want to delete the selected folder, click Yes.

The selected folder is deleted in the way that you specified.

Notes

- Before deleting a folder, you might find it useful to identify the business areas to which the folder is assigned. To identify the business areas, click on the folder you want to delete on the Data tab of the Workarea and choose Tools | Manage Folders to display the "[Manage Folders dialog: By Business Area tab](#)". The

Manage Folders dialog contains a drop down list of other business areas that hold the selected folder.

- To delete an orphaned folder from the EUL, you choose Tools ! Manage Folders to display the "[Manage Folders dialog: Orphaned Folders tab](#)" where you can view and delete orphaned folders. For more information, see "[How to remove an orphaned folder from the EUL](#)".

How to assign folders to a business area

To assign folders to a specific business area:

1. Choose Tools | Manage Folders to display the "[Manage Folders dialog: By Business Area tab](#)".

You use the Business Area -> Folder tab to assign any number of folders (including orphan folders) to a specific business area.

2. Select the business area to which you want to assign one or more folders from the **Business area** drop down list.

By default, the **Business area** drop down list displays the business area currently selected in the Workarea.

3. Move the required folders from the **Available folders** list to the **Current folders** list.

You can select more than one folder by pressing the Ctrl key and clicking another folder.

4. Click OK to save the changes you have made.

The business area now contains the folders you specified in the **Current folders** list.

How to assign a folder to multiple business areas

To assign a folder to multiple business areas:

1. Choose Tools | Manage Folders and display the "[Manage Folders dialog: By Folder tab](#)".

Use the Folder -> Business Area tab to assign a specific folder (including an orphan folder) to multiple business areas.

2. Select the folder that you want to assign to one or more business areas from the **Folder** drop down list.

3. Move the required business areas from the **Available business areas** list to the **Current business areas** list

You can select more than one business area by pressing the Ctrl key and clicking another business area.

4. Click OK to save the changes you have made.

The folder is now assigned to the business areas you specified in the **Current business areas** list.

How to view orphaned folders in the EUL

To view orphaned folders in the EUL:

1. Choose Tools | Manage Folders and display the "[Manage Folders dialog: Orphaned Folders tab](#)".

Discoverer displays all the Orphaned Folders in the current EUL.

How to remove an orphaned folder from the EUL

To remove an orphaned folder from the EUL:

1. Choose Tools | Manage Folders and display the "[Manage Folders dialog: Orphaned Folders tab](#)".

Use the Orphaned Folders tab to delete an orphan folder from the EUL.

2. Select the folder that you want to delete from the **Orphaned Folders** field.
3. Click Delete to remove the highlighted folder from the EUL

You can select more than one orphaned folder by pressing the Ctrl key and clicking another orphaned folder.

4. Click OK to save the changes you have made.

The folder is now deleted from the current EUL.

How to sort folders in a business area

You can alphabetically sort folders in a selected business area.

To alphabetically sort folders in a business area:

1. Select a business area in the "[Workarea: Data tab](#)".

2. Choose Edit | Sort Folders.

Note: Discoverer Administrator displays the "[Alphabetical Sort dialog](#)" indicating the number of folders that will be alphabetically sorted and stating that the existing order will be lost.

3. Click Yes to continue.

Notes

Folders can also be sorted during bulk load when you load a business area. For information about sorting folders when using the:

- Load Wizard, see [Chapter 4, "How to create a business area using the Load Wizard"](#)
- command line interface, see [Chapter 21, "/load"](#)

How to sort items in a folder

You can alphabetically sort items and conditions in a selected folder.

To alphabetically sort items in a folder:

1. Select a folder from a business area in the "[Workarea: Data tab](#)".
2. Choose Edit | Sort items.

Note: Discoverer Administrator displays the "[Alphabetical Sort dialog](#)" indicating the number of items that will be alphabetically sorted and stating that the existing order will be lost.

3. Click Yes to continue.

Notes

Items can also be sorted during bulk load when you load a business area. For information about sorting items when using the:

- Load Wizard, see [Chapter 4, "How to create a business area using the Load Wizard"](#)
- command line interface, see [Chapter 21, "/load"](#)

How to re-order folders in a business area

The order in which you see folders displayed in Discoverer Administrator is the same order that Discoverer end users will see. By default, folders within a business area are displayed in alphabetical order. However, you might want to change the default order to:

- group folders that are logically connected
- move the most commonly used folders to the top of the list

To change the order of folders in a business area:

1. Display the "[Workarea: Data tab](#)".
2. Drag and drop the folder to the position where you want it to appear in the list of folders.

How to validate folders in a business area

Occasionally, you might encounter difficulties with Discoverer Administrator folders. For example, you might be able to see folders in Discoverer Administrator that Discoverer end users cannot access. Use the Validate Folders facility to help you diagnose the problem.

To validate the link between the folders in a business area and the database objects they refer to:

1. Choose View | Validate Folders.

The Validate Folders facility uses the database parser to check that the relevant tables exist in the database and the EUL owner has SELECT access to them.

Controlling access to information

Controlling access to information

This chapter explains how to control access to information using Discoverer Administrator, and contains the following topics:

- "About Discoverer and security"
- "About Discoverer access permissions"
- "About Discoverer task privileges"
- "How to specify a user or role (responsibility) that can access a business area"
- "How to specify the business areas a user or role (responsibility) can access"
- "How to specify the tasks a user or role (responsibility) can perform"
- "How to specify a user or role (responsibility) to perform a specific task"
- "How to set query retrieval limits"
- "How to set scheduled workbook limits"
- "How to share Discoverer workbooks using a database role"

About Discoverer and security

As a Discoverer manager, it is your responsibility to control the information that users can access and what they can do with that information. You use Discoverer access permissions and task privileges as follows:

- you use Discoverer access permissions to control who can see and use the data in business areas

- you use Discoverer task privileges to control the tasks each user is allowed to perform

You can grant Discoverer access permissions and task privileges to database roles as well as to database users. When you grant access permissions or task privileges to a role, all users with that role have the role's access permissions and task privileges. If you are running Discoverer Administrator in Oracle Applications mode, you grant access permissions or task privileges to Oracle Applications Responsibilities instead of roles. For more information about Oracle Applications mode, see [Chapter 16, "What features does Discoverer support for Oracle Applications users?"](#).

The access permissions and task privileges that you grant in Discoverer Administrator only apply to Discoverer's business areas and not to the underlying database tables. Data access rights to the database tables remain under the control of the database administrator.

Regardless of the access permissions and task privileges that you set in Discoverer Administrator, a Discoverer end user only sees folders if that user has been granted the following database privileges (either directly or through a database role):

- SELECT privilege on all the underlying tables used in the folder
- EXECUTE privilege on any PL/SQL functions used in the folder

You can enable a user to perform administrative tasks (e.g. the creation of folders, calculations, conditions, hierarchies, summaries) in a business area by granting that user Administration privilege on the business area. A user with the Administration privilege on a particular business area can also grant Administration privilege on that business area to other users. Note that although you can devolve business area administration to multiple users, it is often easier to maintain control with a single administrator for each business area.

About Discoverer access permissions

Discoverer access permissions enable you to control who can see and use the data in business areas.

You control access to business areas in two ways:

- by specifying the business areas that a particular user or role can access (for more information, see ["How to specify the business areas a user or role \(responsibility\) can access"](#))

- by specifying the users or roles that can access a particular business area (for more information, see ["How to specify a user or role \(responsibility\) that can access a business area"](#))

Before Discoverer end users see folders in a business area, Discoverer confirms that the user has database access to the tables referenced by the folders. If the user does not have access to a table referenced by a folder, Discoverer does not display the folder. You can override this behavior (e.g. to improve performance where access privileges rarely change) by changing the value of the ObjectsAlwaysAccessible registry setting (for more information, see [Chapter 20, "Discoverer registry settings"](#)).

About Discoverer task privileges

Discoverer task privileges enable you to control the tasks each user is allowed to perform.

You use task privileges to specify whether a Discoverer end user is able to:

- create new worksheets or edit existing ones (without this option, a user only has the ability to run predefined worksheets)
- use item drills, drill to related items, and drill from summary to detail items
- drill out to launch other applications
- grant access to workbooks to other users
- create and edit scheduled workbooks
- save workbooks to the database
- collect query performance statistics

You also use task privileges to specify whether a user of Discoverer Administrator is able to:

- edit only the formatting information in an existing business area
- create new business areas and edit existing ones
- create summary tables
- grant and revoke EUL privileges
- maintain the scheduled workbooks of end users

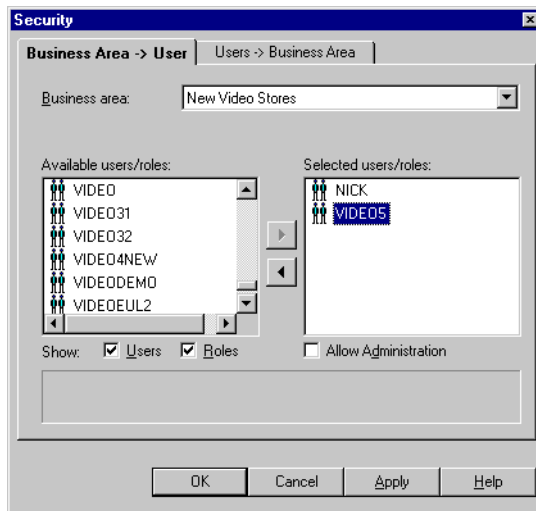
How to specify a user or role (responsibility) that can access a business area

Note: When Oracle Applications database users are connected, Discoverer displays responsibilities instead of roles.

To specify the users or roles that can access a specific business area:

1. Choose Tools | Security and display the "Security dialog: Business Area -> User tab".

Figure 6–1 Security dialog: Business Area->User tab



2. Select the business area to which you want to grant access from the **Business area** drop down list.
3. Specify the content of the **Available users/roles** list by selecting the **Users** check box and/or the **Roles** check box as appropriate.
4. Move the users or roles that you want to have access to the selected business area from the **Available users/roles** list to the **Selected users/roles** list.

You can select more than one user or role by pressing the Ctrl key and clicking another user or role.

5. For each new user or role you add to the **Selected users/roles** list, follow the instructions below to specify whether they have administration access to the business area:
 - a. Click the user or role in the **Selected users/roles** list.
 - b. Select or clear the **Allow Administration** check box as required.

The setting of a user's **Allow Administration** privilege controls which administration tasks the user can perform. For more information, see ["How to specify the tasks a user or role \(responsibility\) can perform"](#).
6. Click OK to save the changes you have made and close the Security dialog.

Notes

- To remove access to a business area from a user or role, move the user or role from the **Selected users/roles** list to the **Available users/roles** list.
- The **Available users/roles** list includes a role called PUBLIC. Select this role to view or edit the default access permissions for users or roles whose permissions you have not yet defined.
- If you are running Discoverer Administrator as an Oracle Applications user, the Security dialog shows Oracle Applications Responsibilities instead of roles. For more information about Applications mode, see [Chapter 16, "What features does Discoverer support for Oracle Applications users?"](#).

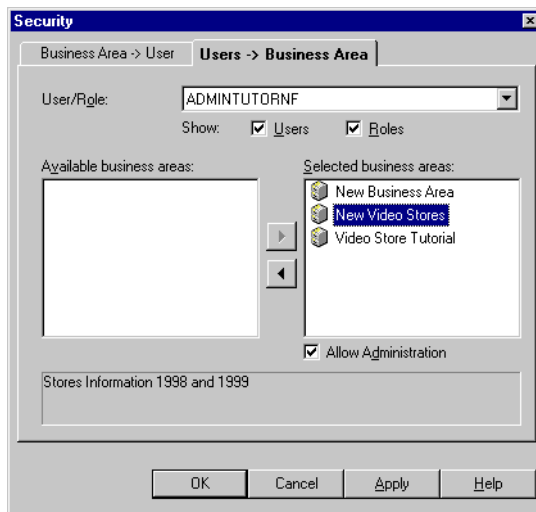
How to specify the business areas a user or role (responsibility) can access

Note: When Oracle Applications database users are connected, Discoverer displays responsibilities instead of roles.

To specify the business areas that a user or role can access:

1. Choose Tools | Security and display the ["Security dialog: Users -> Business Area tab"](#).

Figure 6–2 Security dialog: Users-> Business Area tab



2. Specify the content of the **User/Role** drop down list by selecting the **Users** check box and/or the **Roles** check box as appropriate.
3. Select the user or role to which you want to grant access from the **User/Role** drop down list.
4. Move the business areas that you want the selected user or role to have access to from the **Available business areas** list to the **Selected business areas** list.

You can select more than one business area by pressing the Ctrl key and clicking another business area.

5. For each new business area you add to the **Selected business areas** list, follow the instructions below to specify whether the selected user or role has administration access to the business area:
 - a. Click the business area in the **Selected business areas** list.
 - b. Select or clear the **Allow Administration** check box as required.

The setting of a user's **Allow Administration** privilege controls which administration tasks the user can perform. For more information, see "[How to specify the tasks a user or role \(responsibility\) can perform](#)".

6. Click OK to save the changes you have made and close the Security dialog.

Notes

- To remove access to a business area from a user or role, move the business area from the **Selected business areas** list to the **Available business areas** list.
- The **Users/Roles** drop down list includes a role called PUBLIC. Select this role to view or edit the default access permissions for users or roles whose permissions you have not yet defined.
- If you are running Discoverer Administrator as an Oracle Applications user, the Security dialog shows Oracle Applications Responsibilities instead of roles. For more information about Applications mode, see [Chapter 16, "What features does Discoverer support for Oracle Applications users?"](#).

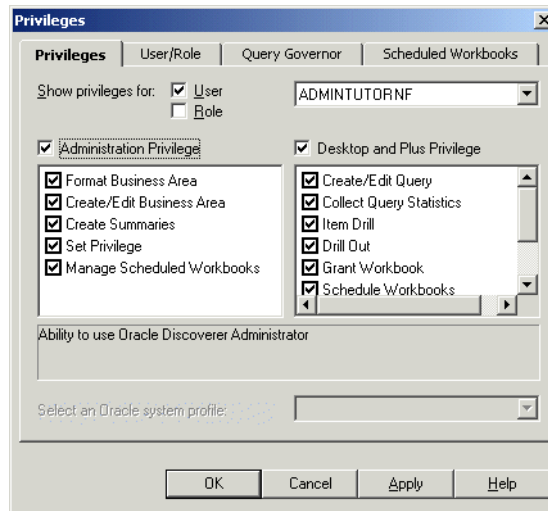
How to specify the tasks a user or role (responsibility) can perform

Note: When Oracle Applications database users are connected, Discoverer displays responsibilities instead of roles.

To specify the tasks a user or role can perform:

1. Choose Tools | Privileges and display the "[Privileges dialog: Privileges tab](#)".

Figure 6–3 Privileges dialog: Privileges tab



2. Specify the content of the **User/Role** drop down list by selecting the **User** check box and/or the **Role** check box as appropriate.
3. Choose the user or role whose task privileges you want to change from the **User/Role** drop down list.
4. Grant or revoke specific task privileges for the user or role by selecting or clearing the appropriate check boxes in the **Administration Privilege** list or the **Desktop and Plus Privilege** list.

Note: To grant a privilege, you must first grant the parent privilege using the **Administration Privilege** check box or the **Desktop and Plus Privilege** check box. If a user has access to Discoverer Desktop or Discoverer Plus via a responsibility and you clear the **Desktop and Plus** check box, any selected check boxes in the list of privileges will still be active (although they appear grayed out). The total privileges for a user are determined by the combination of responsibility and user privileges.

Hint: Click on a privilege in the **Administration Privilege** list or the **Desktop and Plus Privilege** lists to see a brief description of that privilege in the area below the lists.

5. Choose an Oracle system profile to apply to the user or role from the **Apply an Oracle System Profile** drop down list (only available if you are using an Oracle database).

Oracle system profiles are created by the database administrator to control access to database resources.

Note: To assign Oracle system profiles within Discoverer Administrator you must have access to the following database views:

- DBA_PROFILES
- DBA_USERS

6. Click OK to save the changes you have made and close the Privileges dialog.

Notes

- The changes you have made will take effect when users re-connect to Discoverer.
- The drop down list for user/role includes a role called PUBLIC. Select this role to view or edit the default task privileges for users or roles whose privileges you have not yet defined.

- If you want to grant Administration privileges to a user or role, you must also grant that user Administration access to the business area. For more information, see ["How to specify a user or role \(responsibility\) to perform a specific task"](#).
- If you are running Discoverer Administrator as an Oracle Applications user, the Privileges dialog shows Oracle Applications Responsibilities instead of roles. For more information about Oracle Applications mode, see [Chapter 16, "What features does Discoverer support for Oracle Applications users?"](#).

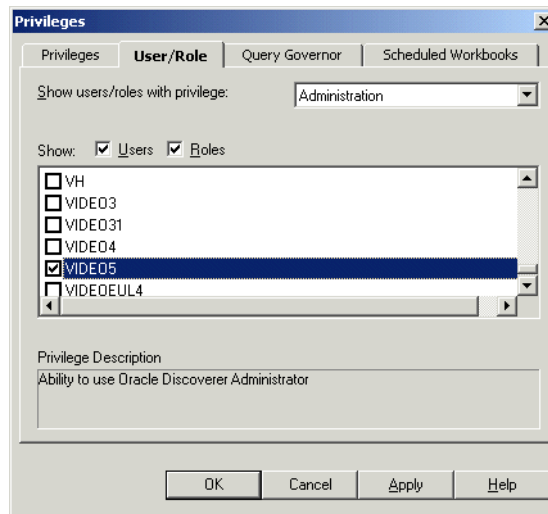
How to specify a user or role (responsibility) to perform a specific task

Note: When Oracle Applications database users are connected, Discoverer displays responsibilities instead of roles.

To specify the users or roles that can perform a specific task:

1. Choose Tools | Privileges and display the ["Privileges dialog: User/Role tab"](#).

Figure 6–4 Privileges dialog: User/Role tab



2. Select the task privilege that you want to grant to (or revoke from) users or roles from the drop down list.

When you select a privilege from the drop down list, a brief description of the privilege appears on the lower area of the dialog.

3. Specify the content of the **Users/Roles** list by selecting the **Users** check box and/or the **Roles** check box as appropriate.

The content of the **Users/Roles** list is sorted alphabetically. If you include both users and roles, users appear first.

4. Grant or revoke privileges for the currently selected task by selecting or clearing the appropriate check boxes in the **Users/Roles** list.
5. Click OK to save the changes you have made and close the Privileges dialog.

Notes

- The changes you have made will take effect when users re-connect to Discoverer.
- If you want to grant (or deny) administration privileges to a user or role, you must also grant (or deny) that user administration access to the business area. For more information, see ["How to specify a user or role \(responsibility\) that can access a business area"](#).
- If you are running Discoverer Administrator as an Oracle Applications user, the Privileges dialog shows Oracle Applications Responsibilities instead of roles. For more information about Oracle Applications mode, see [Chapter 16, "What features does Discoverer support for Oracle Applications users?"](#).

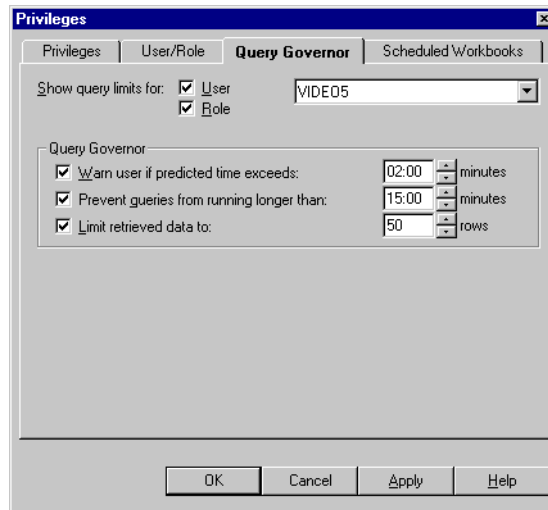
How to set query retrieval limits

You can maintain overall system performance by setting query limits for users and roles.

Note: When Oracle Applications database users are connected, Discoverer displays responsibilities instead of roles.

To set query retrieval limits for a user or role:

1. Choose Tools | Privileges and display the ["Privileges dialog: Query Governor tab"](#).

Figure 6–5 Privileges dialog: Query Governor tab

2. Specify the content of the **User/Role** drop down list by selecting the **User** check box and/or the **Role** check box as appropriate.
The **Role** check box is only available if you are using an Oracle database.
3. Choose the user or role for which you want to specify a query limit from the **User/Role** drop down list.
4. Specify the following Query Governor options as required:

Option	Use to:
Warn user if predicted time exceeds:	issue a warning if the estimated time to perform a query exceeds the limit you specify
Prevent queries from running longer than:	stop queries that have been running for longer than the limit you specify
Limit retrieved data to:	restrict the number of rows a query can retrieve to the limit you specify

5. Click OK to save the changes you have made and close the Privileges dialog.

Notes

- To find out how Discoverer estimates the time a query will take to run and the number of rows the query will retrieve, see [Chapter 19, "About predicting query performance"](#).
- Where Discoverer estimates that a query will take longer to run than the limit you set, you can specify that the user must run the query as a scheduled workbook using options on the "[Privileges dialog: Scheduled Workbooks tab](#)".
- If you are running Discoverer Administrator as an Oracle Applications user, the Privileges dialog shows Oracle Applications Responsibilities instead of roles. For more information about Oracle Applications mode, see [Chapter 16, "What features does Discoverer support for Oracle Applications users?"](#).

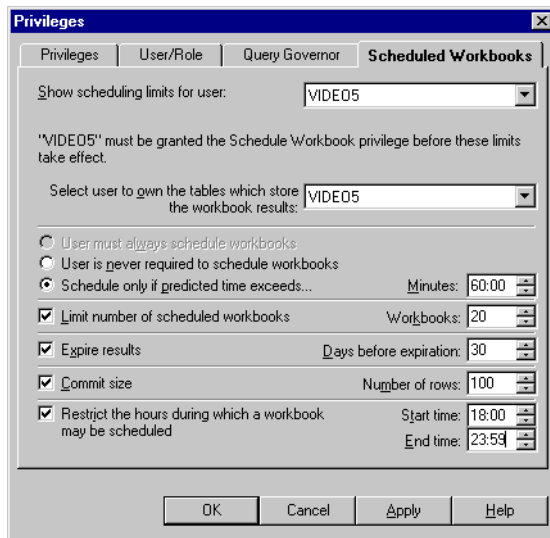
How to set scheduled workbook limits

You can control how a Discoverer end user makes use of scheduled workbooks by setting scheduled workbook limits.

To set scheduled workbook limits for a user or role:

1. Choose Tools | Privileges and display the "[Privileges dialog: Scheduled Workbooks tab](#)".

Figure 6–6 Privileges dialog: Scheduled Workbooks tab



2. Select the user for which you want to specify scheduled workbook privileges from the **Show scheduling limits for user** drop down list.
3. Select the user to own the result tables created in the database (that contain the results of scheduled workbooks).

The results of scheduled workbooks are stored in database tables. These tables can belong to a different user to the one that originally ran the scheduled workbook.

Note: Oracle Applications users must use the Oracle Applications APPS user as the scheduled workbook results schema in which to store workbook results.

4. Specify when you want to force the user to schedule workbooks as follows:

Option	Use to specify that:
User must always schedule workbooks	the user must always schedule workbooks
User is never required to schedule workbooks	the user is never forced to schedule queries (i.e. the user can choose whether to run queries online or schedule them)
Schedule only if predicted time exceeds	the user has to schedule a query that exceeds the predicted time that you specify

5. Set the following scheduled workbook options as required:

Option	Use to:
Limit number of scheduled workbooks	restrict the scheduled workbooks that the user can maintain at one time to the number you specify This option enables you to prevent users from submitting so many scheduled workbooks that no other jobs on the DBMS_JOB queue can run.
Expire results	limit the lifetime of results from the user's scheduled workbooks to the number of days you specify (the results are deleted at the end of the user's Discoverer session)

Option	Use to:
Commit size	limit on the number of rows written to the results table For example, if 1000 rows need to be written and the Commit size is 100, 10 writes are performed. Note that on large result sets, you can improve server performance by setting the Commit size higher than the default (although little gain will be achieved by setting the Commit size higher than 1000).
Restrict the hours during which a workbook may be scheduled	specify the times between which the user can schedule workbooks to run

6. Click OK to save the changes you have made and close the Privileges dialog.

Notes

- You might decide to have a single database user owning the tables containing the results of all users' scheduled workbooks (with the benefit that individual users do not need additional privileges to run scheduled workbooks). Alternatively, you might decide to have a scheduled workbook results schema owning the tables containing the results for each user's scheduled workbooks (with the benefit that space quota is not shared and is therefore less likely to be exhausted than if the tables were owned by a single database user). For more information, see [Chapter 7, "Where to store the results of scheduled workbooks?"](#).

How to share Discoverer workbooks using a database role

You might want to share Discoverer workbooks in an End User Layer (EUL) using a database role. For example you might only want database users that have been granted the database role of a manager, to access specific Discoverer workbooks. You can determine the database users that can use specific Discoverer workbooks by associating the database users with a database role, and sharing the Discoverer workbooks with the database role as follows:

- identify an existing database role or create a new database role
- make sure that the database role can select data from the database tables that will be used by your Discoverer workbooks
- grant the database role to the database users, whose workbooks you want to share with the database role

- identify or create the Discoverer workbooks using a database user that has been granted the database role
- share the Discoverer workbooks with the database role

Each database user that is granted the database role will be able to access workbooks that are shared with that database role.

How to share workbooks using a database role:

1. Start SQL*Plus (if it is not already running) and connect as the EUL owner.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect jchan/tiger
```

Where jchan is the EUL owner and tiger is the EUL owner password.

2. Create a database role as the EUL owner.

For example, in SQL*Plus you might enter the following SQL statement:

```
SQL> create role role1;
```

The above statement creates a database role named role1.

3. Grant the SELECT privilege on the appropriate database tables to the database role you just created.

For example, in SQL*Plus you might enter the following SQL statement:

```
SQL> grant select on product to role1;  
SQL> grant select on store to role1;  
SQL> grant select on sales_fact to role1;
```

The above statement grants the select privilege on the product, store and sales_fact tables to the database role role1.

Note: The select privilege must be granted to the role on all the tables that are referenced by items used in Discoverer workbooks.

4. Grant the role that you just created to each database user with whom you want to share Discoverer workbooks.

For example, in SQL*Plus you might enter the following SQL statement:

```
SQL> grant role1 to jchen;
```

The above statement grants the database role role1 to the database user jchen.

The remaining task steps must be carried out using Discoverer Plus or Discoverer Desktop.

For more information, see the *Oracle Application Server Discoverer Plus User's Guide*.

5. In Discoverer Plus or Discoverer Desktop, connect as the EUL owner and choose File | Manage Workbooks | Sharing to display the Share Workbooks dialog.
6. Select the database role that you previously created (e.g. role1).
7. Move the workbooks you want to share with the database role role1, from the **Available** field to the **Shared** field.
8. Click OK to close the dialog and save the changes you made.

The database users that have been granted the database role will now be able to use any Discoverer workbooks that have been shared with the database role.

Scheduling workbooks

Scheduling workbooks

This chapter explains how to enable users to schedule workbooks and contains the following topics:

- "What are workbooks and scheduled workbooks?"
- "Why schedule workbooks?"
- "What happens when an end user schedules a workbook?"
- "What Oracle database features support workbook scheduling?"
- "Where to store the results of scheduled workbooks?"
- "What are the prerequisites for scheduling workbooks?"
- "How to confirm that the DBMS_JOB package is installed"
- "How to specify the owner of the tables containing scheduled workbooks results"
- "How to control the frequency that the server checks for new scheduled jobs"
- "How to view and manage scheduled workbooks"
- "About scheduled workbooks and compatibility between the current version of Discoverer and previous releases"

What are workbooks and scheduled workbooks?

A workbook is a collection of Discoverer worksheets. Workbooks are essentially documents containing query definitions. Discoverer end users can store their

workbooks centrally in the database. In Discoverer Desktop, users can also store workbooks on their own PC or on a network file server.

A scheduled workbook is a workbook that has been set by the user to run automatically at a particular date, time, and frequency. Scheduled workbooks are placed on a process queue on the database server. End users can schedule workbooks using Discoverer Plus and Desktop. As the Discoverer manager, you can use Discoverer Administrator to monitor and maintain scheduled workbooks.

Note the following:

- Users can run workbooks in the background using the Discoverer command line options (Desktop only). Such workbooks are not scheduled workbooks.
- Scheduled workbooks, scheduling information and the results of scheduled workbooks are not exported when you export a business area.
- If the objects of the EUL used by a scheduled workbook changed between the time when the workbook is scheduled and the time when the result set is displayed, the scheduled workbook's status is set to indicate that the EUL has changed.

Why schedule workbooks?

From a Discoverer end user's point of view, the ability to schedule workbooks is useful for:

- reports that take a long time to run
- reports that have to run at regular intervals

For example, a Discoverer end user might want to run a report that they know will take a long time to complete. The user can schedule the report to run overnight and have the results ready to view the next morning.

From a Discoverer manager's point of view, workbook scheduling is useful to prevent long-running queries from adversely affecting system performance. You can force users to schedule workbooks (either all workbooks, or only those workbooks that will exceed a predicted time that you specify), and you can further specify the time periods that scheduled workbooks are permitted to run.

What happens when an end user schedules a workbook?

The table below shows what happens when an end user schedules a workbook in Discoverer Plus.

Sequence	Action	Notes
1.	User selects worksheet (or worksheets) to include in scheduled workbook	N/A
2.	User specifies date, time, and frequency at which scheduled workbook is to run	N/A
3.	Discoverer Plus confirms that scheduling the workbook does not exceed user's limit on number of scheduled workbooks	<p>The limit on the number of scheduled workbooks restricts the number of scheduled workbooks that can be maintained at any one time. As the Discoverer manager, you specify this limit on the "Privileges dialog: Scheduled Workbooks tab". If the user exceeds their limit, Discoverer Plus displays a message and the workbook is not scheduled.</p> <p>The <code>job_queue_processes</code> value controls the maximum number of jobs that can be run at any one time on the server. For more information, see "What Oracle database features support workbook scheduling?".</p> <p>Setting a limit on the number of scheduled workbooks is not the same as the <code>job_queue_processes</code> value in the Oracle initialization file.</p>
4.	Discoverer adds scheduled workbook to DBMS_JOB within Oracle database kernel	N/A
5.	Periodically, the job queue process is activated and the next job in the queue is run	<p>The scheduled workbook is processed entirely on the server. You use the <code>job_queue_interval</code> value (desupported in Oracle9i (and later) Enterprise Edition databases) in the Oracle database initialization file to specify the length of time that the job queue process is inactive. For more information, see "How to control the frequency that the server checks for new scheduled jobs".</p>
6.	A database table is created and populated with the output or result set of the scheduled workbook	<p>The result set is stored under the schema specified by the Discoverer manager. For more information, see "Where to store the results of scheduled workbooks?".</p>
7.	User can view scheduled workbook	N/A
8.	User can delete result set when no longer required - at which point the table is dropped	<p>As the Discoverer manager, you can specify how long the results of a user's scheduled workbook can remain in the database before being automatically deleted (see "Privileges dialog: Scheduled Workbooks tab").</p>

What Oracle database features support workbook scheduling?

Discoverer takes advantage of native scheduling functionality in the Oracle database to schedule workbooks. Specifically, Discoverer makes use of the DBMS_JOB package.

You control the processing of the DBMS_JOB package using the following parameters in the Oracle database initialization file (the INIT<SID>.ORA file).

Parameter in INIT<SID>.ORA	Use to:
job_queue_processes	<p>Use this parameter to specify the maximum number of concurrent processing requests that can be used to process DBMS_JOB. The default value is zero, which means processing requests will not be created. If you want to have ten processing requests to be handled simultaneously, set this parameter to 10.</p> <p>If any other applications use DBMS_JOB, set this parameter to at least 2.</p> <p>Hint: You need more than one job queue process because a job that fails (for any reason) might continue to be re-submitted and prevent any other jobs in the queue from being submitted.</p>
job_queue_interval	<p>Use this parameter to specify the time frequency (in seconds) after which job processes are started to process pending jobs. The default is 60 seconds, which means that every 60 seconds the job processes start to serve processing requests. What you set this parameter to depends on how frequently you want the process to start up and serve the requests that have been made. Oracle recommends that you set this parameter to at least 600 seconds (i.e. 10 minutes). Note that this parameter also affects the Discoverer summary management feature (for more information about summary folders, see Chapter 13, "Managing summary folders").</p> <p>Note: The job_queue_interval parameter is desupported in Oracle9i (and later) Enterprise Edition databases. In Oracle9i Enterprise Edition databases, job queue processes are dynamically spawned by a coordinator job queue (CJQ0) background process. The coordinator periodically selects jobs that are ready to run from the jobs shown in the dba_jobs view.</p>

For more information about setting the parameters in the INIT<SID>.ORA file, see ["How to control the frequency that the server checks for new scheduled jobs"](#).

Note that workbook scheduling is only available when running against an Oracle database because both DBMS_JOB and the INIT<SID>.ORA file are only available with Oracle databases.

Where to store the results of scheduled workbooks?

Discoverer stores the results of scheduled workbooks in database tables. Before an end user can schedule a workbook, you must decide which database user (schema) is to own those tables. You have two choices as described in the table below:

Owner	Notes
the schema running the scheduled workbook	<p>The advantage of specifying the result set storage in the end user's schema is that a database limit can be specified on the maximum amount of data an end user can store in the database. If the result set is stored under the end user's schema, you keep control over the maximum amount of space one individual end user can fill with result sets. If the end user creates a scheduled workbook that fills the space, only that end user's schema is affected.</p> <p>A disadvantage is that it increases the maintenance overhead.</p> <p>Note: Since Oracle Applications users often share the same secure database account, they are advised to create a scheduled workbook results schema to store the results of scheduled workbooks.</p>
scheduled workbook results schema	<p>The advantage of specifying the result set storage in a scheduled workbook results schema is that it is generally easier to manage than using multiple database user schemas. Also each end user does not need to set up additional database privileges to run scheduled workbooks.</p> <p>The disadvantage is that space quota is shared and so could be exhausted by a single end user.</p> <p>Note: Oracle Applications users must use the Oracle Applications APPS database user as the scheduled workbook results schema (for more information, see "How to set scheduled workbook limits"). Since the APPS database user is already the default schema for Oracle Applications users, there is no need to run the SQL script (i.e. batchusr.sql) to create a scheduled workbook results schema.</p>

For more information about how to specify where the results of scheduled workbooks are stored, see "[How to specify the owner of the tables containing scheduled workbook results](#)".

What are the prerequisites for scheduling workbooks?

Before an end user can schedule a workbook, you must:

- configure the database to enable the scheduled workbooks feature by:

- confirming that the DBMS_JOB package is already installed on the database and installing the package if it is not already installed (for more information, see ["How to confirm that the DBMS_JOB package is installed"](#))
- specifying the database user that will own the tables containing the results of scheduled workbooks (for more information, see ["How to specify the owner of the tables containing scheduled workbooks results"](#))
- setting the frequency of scheduled workbook processing (for more information, see ["How to control the frequency that the server checks for new scheduled jobs"](#))
- grant the Schedule Workbooks privilege to the database user (for more information, see [Chapter 6, "How to specify the tasks a user or role \(responsibility\) can perform"](#))

How to confirm that the DBMS_JOB package is installed

Before an end user can schedule a workbook, the DBMS_JOB package must have already been installed on the database. If the DBMS_JOB package has not yet been installed, you must install it.

To confirm that the DBMS_JOB package is installed:

1. Start SQL*Plus (if it is not already running) and connect as the database administrator.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT dba_user/dba_pw@database;
```

Where dba_user is the database administrator and dba_pw is the database administrator password.

2. Type the following at the command prompt:

```
SQL> select * from all_objects where object_name='DBMS_JOB' and object_type = 'PACKAGE';
```

If the above statement returns one or more rows, the DBMS_JOB package is already installed on the database.

If the above statement returns no rows, the DBMS_JOB package has not yet been installed. You must install the DBMS_JOB package before users can schedule workbooks.

To install the DBMS_JOB package if it is not yet installed, for Oracle9i databases:

1. Start SQL*Plus (if it is not already running) and connect as the SYS user, or a user to which the sysdba privilege has been granted.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT sys/sys_pw@database AS SYSDBA;
```

Where sys is the SYS user and sys_pw is the SYS user password.

2. Type the following at the command prompt:

```
SQL> start <ORACLE_HOME>/rdbms/admin/dbmsjob.sql;
```

3. Type the following at the command prompt:

```
SQL> start <ORACLE_HOME>/rdbms/admin/prvtjob.plb;
```

To install the DBMS_JOB package if it is not yet installed, for Oracle databases earlier than Oracle9i:

1. Choose Run from the Windows Start menu (on the database machine).
2. Type one of the following at the command prompt to start the appropriate version of the DBA utility:

Version of Oracle:	Type the following:
Oracle 8.0 and above	SVRMGRL
Oracle8i Personal Edition	SVRMGR

3. Log on to the DBA utility as the database administrator.

4. Type the following at the command prompt:

```
SVRMGRL> connect internal
```

5. Type the following at the command prompt:

```
SVRMGRL> start <ORACLE_HOME>/rdbms/admin/dbmsjob.sql;
```

6. Type the following at the command prompt:

```
SVRMGRL> start <ORACLE_HOME>/rdbms/admin/prvtjob.plb;
```

Notes

- In some operating systems, the RDBMS directory is suffixed with the version number (e.g. RDBMS73).

How to specify the owner of the tables containing scheduled workbooks results

The results of scheduled workbooks are stored in database tables. Discoverer's default behavior is to store scheduled workbooks in the EUL owners schema. Before an end user schedules a workbook, you must decide which database user is to own those tables. You have two choices:

- the database user running the scheduled workbook
- a scheduled workbook results schema

For more information about these two choices, see ["Where to store the results of scheduled workbooks?"](#)

Regardless of the choice you make, the database user that will own the tables containing scheduled workbook results must have certain database privileges.

Specify that the database user scheduling a workbook is to own the database tables containing the results of that workbook

To specify a database user to own the database tables containing the results of that workbook:

1. Start SQL*Plus (if it is not already running) and connect as the database administrator.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT dba_user/dba_pw@database;
```

Where dba_user is the database administrator and dba_pw is the database administrator password.

2. Type the following at the command prompt:

```
SQL> grant CREATE PROCEDURE to <user name>;  
SQL> grant CREATE TABLE to <user name>;  
SQL> grant CREATE VIEW to <user name>;
```

where <user name> is the name of the database user that is to schedule workbooks.

Note that you must grant these privileges directly to the database user and not to a database role.

Use a script to specify a scheduled workbook results schema to own the scheduled workbook results tables (i.e. not the database user scheduling the workbook)

To specify a scheduled workbook results schema to own the results tables of scheduled workbooks:

Note: Oracle Applications users should not use this script, but instead use the existing Oracle Applications APPS user (for more information, see "[How to set scheduled workbook limits](#)").

Note: You must know the user name and password of the EUL owner in order to run the script batchusr.sql.

1. Start SQL*Plus (if it is not already running) and connect as the database administrator.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT dba_user/dba_pw@database;
```

Where dba_user is the database administrator and dba_pw is the database administrator password.

2. Type the following at the command prompt:

```
SQL> start<ORACLE_HOME>\discoverer\util\batchusr.sql;
```

3. Enter the user name, password and database connection details for the scheduled workbook results schema being created by the script batchusr.sql.
4. (optional) Change the tablespace settings for the scheduled workbook results schema.

Note: Ask your database administrator if you are unsure about these settings.

5. Enter the EUL owner user name for the EUL that the scheduled workbook results schema will have access to.

Note: The script creates a scheduled workbook results schema and grants the following database privileges:

- CREATE PROCEDURE
- CREATE TABLE
- CREATE VIEW
- SELECT ANY TABLE

The scheduled workbook results schema created by the batchusr.sql script is granted the SELECT ANY TABLE database privilege to enable access to the underlying data needed for workbook scheduling. Without this grant, this database user's access to the underlying data might be limited.

If you do not want the scheduled workbook results schema to have the SELECT ANY TABLE database privilege on the underlying data, you must revoke the privilege manually.

6. Connect to Discoverer Administrator as the EUL owner that you used in the previous step (when running the script batchusr.sql).
7. In Discoverer Administrator select Tools | Privileges and display the "[Privileges dialog: Scheduled Workbooks tab](#)".

You must use Discoverer Administrator to choose the database user that will own the scheduled workbook result tables created in the database.

8. Use the **Show scheduling limits for user** drop down list to select the EUL owner.
9. Use the **Select the user to own the results created in the database:** drop down list to select the scheduled workbook results schema that you created in the script batchusr.sql.
10. Click OK.

You have used the script batchusr.sql to create a scheduled workbook results schema and then used the Privileges dialog to select the scheduled workbook results schema to be used for the EUL owner.

For more information about scheduled workbook privileges, see [Chapter 6, "How to set scheduled workbook limits"](#).

Notes

- The scheduled workbook results schema created by the script batchusr.sql can only have access to one EUL.

- Be aware that a Discoverer end user could run a scheduled workbook that fills the available result set space. Other database users would not be able to run scheduled workbooks until it is cleared.
- The scheduled workbook results schema created by the batchusr.sql script will not be able to directly schedule a workbook using Discoverer Plus.

How to control the frequency that the server checks for new scheduled jobs

You use the following two parameters in the INIT<SID>.ORA file to control scheduled workbook processing:

- `job_queue_processes`
- `job_queue_interval` (desupported in Oracle9i (and later) Enterprise Edition databases)

For more information about these parameters, see "[What Oracle database features support workbook scheduling?](#)".

To control the frequency of scheduled workbook processing:

1. Locate the INIT<SID>.ORA file.

The INIT<SID>.ORA file is held in <ORACLE_HOME>\database. The default name of the file is INITORCL.ORA, where ORCL is the <SID> name.

2. Add the following two lines to the INIT<SID>.ORA file:

```
job_queue_processes = <a_value>
job_queue_interval = <a_value_in_seconds>
```

where:

- <a_value> is the number of concurrent processing requests that can be used to process DBMS_JOB (if other applications use DBMS_JOB, we recommend you set this parameter to at least 2)
- <a_value_in_seconds> is the time frequency (in seconds) after which job processes are started to process pending jobs (we recommend you set this parameter to at least 600 seconds)

For example, you might add the following two lines to the INIT<SID>.ORA file:

```
job_queue_processes = 2
job_queue_interval = 600
```

Notes

- Discoverer's summary management feature and workbook scheduling feature both use the Oracle database's native scheduling capability. The values you specify for `job_queue_processes` and `job_queue_interval` will affect both features. The database must be stopped and re-started for these changes to take effect.

How to view and manage scheduled workbooks

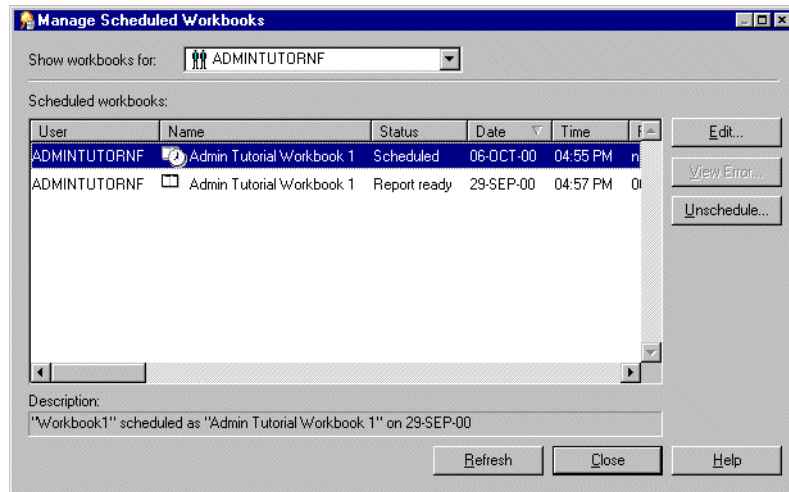
As the Discoverer manager, you will want to monitor the status of currently scheduled workbooks, as well as:

- view error messages for scheduled workbooks that have not run successfully
- delete scheduled workbook results from the database
- remove scheduled workbooks from the process queue
- edit scheduled workbook settings

Note: If you have an Oracle Applications mode EUL you must login as the EUL owner to view and manage scheduled workbooks.

To view and manage a scheduled workbook:

1. Choose Tools | Manage Scheduled Workbooks to display the "[Manage Scheduled Workbooks dialog](#)".

Figure 7–1 Manage Scheduled Workbooks dialog

2. Select the user or role whose scheduled workbooks you want to display in the list from the **Show workbooks for** drop down list.

Hints: You can:

- show all scheduled workbooks by selecting **All Users** from the drop down list
 - sort the list using different columns by clicking the appropriate column heading
 - see a description (where one exists) of the currently selected scheduled workbook in the **Description** field.
3. (optional) To view an error message for a scheduled workbook that has not run successfully, select the scheduled workbook and click View Error.
The View Error button is only enabled for scheduled workbooks when the status is set to indicate that an error occurred while running the query.
 4. (optional) To prevent a scheduled workbook from running by removing it from the process queue:
 - a. Select the scheduled workbook.
 - b. Click Unschedule.
 - c. Click Yes to confirm that you want to remove the scheduled workbook.

5. (optional) To delete the results of a scheduled workbook from the database (i.e. after the scheduled workbook has run), select the scheduled workbook and click Delete.
6. (optional) To edit a scheduled workbook scheduling information, select the workbook and click Edit... to display the Schedule Workbook dialog and:
 - use the "[Schedule Workbook dialog: Schedule tab](#)" to view the sheets included in the scheduled workbook, set the schedule time and repeat interval.
 - use the "[Schedule Workbook dialog: General tab](#)" to view the name of the scheduled workbook, view and edit the description, choose whether to save just the latest results and set the interval after which results will automatically be deleted.
7. (optional) To see the effect of the changes you have made in the "[Manage Scheduled Workbooks dialog](#)", click Refresh.
8. Click Close to close the Manage Scheduled Workbooks dialog.

Notes

- The Delete button only appears when you select a scheduled workbook that has run.
- If a scheduled workbook uses EUL objects that have changed between the time when the workbook is scheduled and the time when the result set is displayed, the scheduled workbook's status is set to EUL has changed.

About scheduled workbooks and compatibility between the current version of Discoverer and previous releases

New version of batch PL/SQL package is installed into user's schema

When you carry out an EUL upgrade to this version of Discoverer, a new version of the batch PL/SQL package is installed into the user's schema alongside the existing package. Preserving the existing PL/SQL package prevents any existing scheduled workbook batch jobs from being destroyed. Function names in the new batch PL/SQL package however, remain the same as the existing batch PL/SQL package.

Run script to specify that a scheduled workbook results schema is to own the results tables

When you upgrade the EUL to this version of Discoverer and the following conditions are true:

- the database user that schedules a workbook does not own the database tables containing the workbook results
- you want a different database user (a scheduled workbook results schema) to own the database tables containing the workbook results

In this case you must install the new version of the batch PL/SQL package (EUL5_BATCH_USER) using the SQL script batchusr.sql. The script is located in the <ORACLE_HOME>\discoverer\util directory. The new version of the batch PL/SQL package can be installed into the scheduled workbook results schema (i.e. the user's schema that owns the tables containing the workbook results). For more information, see ["Use a script to specify a scheduled workbook results schema to own the scheduled workbook results tables \(i.e. not the database user scheduling the workbook\)"](#).

Maintaining items and item classes

Maintaining items and item classes

This chapter explains how to maintain items and item classes using Discoverer Administrator, and contains the following topics:

- "What are items?"
- "What are item classes?"
- "What are lists of values?"
- "About setting up lists of values"
- "What are alternative sorts?"
- "Examples of different ways to implement alternative sorts"
- "What is drill to detail?"
- "About setting up drill to detail"
- "What are date items?"
- "What are date format masks?"
- "About truncating date items and the EUL_DATE_TRUNC function"
- "About applying conditions to truncated date items"
- "About drilling out to other applications"
- "How to edit item properties"
- "How to create a LOV item class"
- "How to create an alternative sort item class"
- "How to create a drill to detail item class"

- ["How to create a list of values using a custom folder"](#)
- ["How to edit an item class"](#)
- ["How to add items to an item class"](#)
- ["How to remove items from an item class"](#)
- ["How to view the items that use an item class"](#)
- ["How to view the list of values for an item"](#)
- ["How to view the list of values for an item class"](#)
- ["How to delete items and item classes"](#)
- ["Notes about maintaining items and item classes"](#)

What are items?

A Discoverer item is a representation in the End User Layer of one of the following:

- a column in a database table or view
- a component of a custom folder (for more information, see [Chapter 5, "What are custom folders?"](#))
- a calculation (for more information, see [Chapter 10, "What are calculated items?"](#))

Items are stored in folders and can be created, deleted and moved between folders. Items have properties that you can change (e.g. display name, formatting details). Items enable Discoverer end users to access and manipulate information until they find the information they want.

What are item classes?

Item classes are groups of items that share some similar properties. An item class enables you to define item properties once, and then assign the item class to other items that share similar properties.

For example, assume the Product folder includes an item called Product Name that describes each product. A similar item also called Product Name may be required in the Sales Revenue folder. To enable both items to share common properties (e.g. a list of values), you might create one item class to define the properties, and apply it to both items. In other words, you only have to define the properties once. Without the item class, you would have to define the properties individually for each item.

Discoverer uses item classes to implement the following features:

- lists of values
- alternative sorts
- drill to detail links

As the Discoverer manager, it is your responsibility to create suitable item classes to support these Discoverer features. You can create a different item class for each feature or you can specify that Discoverer uses the same item class for more than one feature. Note that an item class to support an alternative sort must also support a list of values.

What are lists of values?

A list of values (or 'LOV') is a set of valid values for an item. The values are those values in the database column on which the item is based. Discoverer end users use LOVs to display values or enter values in:

- parameters
- conditions
- the Discoverer item navigator
- the Export dialog

For example, assume that an item is based on a database column (e.g. Region) that contains the following values:

Region
West
East
South
North
East
North
South

An LOV based on this item might contain five distinct values:

- West
- East
- South
- North

About setting up lists of values

Discoverer uses item classes to implement LOVs. When you first create a business area, you can specify that LOVs are to be generated automatically (for more information, see ["Load Wizard: Step 4 dialog"](#)). Subsequently, you can use the Item Class Wizard to create new LOVs and assign existing LOVs to other items (for more information, see ["How to create a LOV item class"](#)).

What are alternative sorts?

An alternative sort is an instruction to Discoverer about how to sort the values in an item. Alternative sorts enable you to specify a different sort order to the one that Discoverer uses by default.

By default, Discoverer sorts items in ascending or descending order using ASCII values. However, Discoverer end users might require some items to be sorted in a different order.

For example, by default, Discoverer sorts a series of sales regions alphabetically (e.g. Central, East, North, South, West). But Discoverer end users might need sales regions sorted in a different order (e.g. North, South, East, West, Central).

To create an alternative sort order, you must use an item class to link together two items:

- an item to define the sort order
- an item to define the list of values to be sorted

Having defined the item class, you associate that item class with the item that Discoverer end users will include in their worksheets.

There are a number of ways to implement alternative sorts, including:

- using a custom folder (for more information, see ["Example 1: Using a custom folder to implement alternative sorts"](#))
- using a separate database table (for more information, see ["Example 2: Using a database table to implement alternative sorts"](#))

- using a calculated item and a DECODE statement (for more information, see ["Example 3: Using a calculated item and a DECODE statement to implement alternative sorts"](#))

Regardless of the way you choose to implement an alternative sort, note the following:

- the item class you use to implement an alternative sort must include both an alternative sort and a LOV
- the two items you select for the item class's alternative sort and LOV must be in the same folder

For information about how to create an alternative sort item class, see ["How to create an alternative sort item class"](#).

Examples of different ways to implement alternative sorts

Example 1: Using a custom folder to implement alternative sorts

You can use a custom folder to implement an alternative sort by using the folder's Custom SQL property to create two items. One item contains the list of values and the other item specifies the sort order. You can then create an item class and specify the two items in the custom folder as the item class's LOV and alternative sort respectively.

For example, you might want Discoverer end users to include an item called Ordered Regions in their worksheets. When users sort the values in this item, you want the order of the sales regions to be North, South, East, West (i.e. not the default alphabetical order). To implement this alternative sort using a custom folder, you might:

- create a custom folder called Sales Regions Sort Folder
- enter the following as the custom folder's Custom SQL property:

```
select 'North' region_name, 1 region_order from dual union  
select 'South' region_name, 2 region_order from dual union  
select 'East' region_name, 3 region_order from dual union  
select 'West' region_name, 4 region_order from dual union
```

- create an item class called Sales Regions Customized Sort
- specify region_name as the LOV item and region_order as the alternative sort item for the Sales Regions Customized Sort item class

- specify Sales Regions Customized Sort as the item class associated with the Ordered Regions item that users will include in their worksheets
- when users sort a worksheet using the Ordered Regions item, the worksheet is sorted using the new order

Example 2: Using a database table to implement alternative sorts

You can use a database table to implement an alternative sort by creating a new database table with two columns containing the values and their associated numerical order. If a suitable database table containing the values and their associated numerical order already exists, consider using that table. To avoid performance issues, avoid using a database table that contains more than one occurrence of each value.

Having loaded the table into the EUL as a folder, you can then create an item class and specify the two items for the item class's LOV and alternative sort respectively.

For example, you might want Discoverer end users to include an item called Ordered Regions in their worksheets. When users sort the values in this item, you want the order of the sales regions to be North, South, East, West (i.e. not the default alphabetical order). To implement this alternative sort using a database table:

- use SQL*Plus to create a database table called SALES_REGION_SORT with two columns REGION_NAME and REGION_NUMBER by entering the following at the command prompt:

```
> create table SALES_REGION_SORT (REGION_NAME VARCHAR2(10), REGION_NUMBER NUMBER(2));
```

- use SQL*Plus to insert values into the SALES_REGION_SORT table by entering the following at the command prompt:

```
> insert into SALES_REGION_SORT (REGION_NAME, REGION_NUMBER) values ('North', 1)
> insert into SALES_REGION_SORT (REGION_NAME, REGION_NUMBER) values ('South', 2)
> insert into SALES_REGION_SORT (REGION_NAME, REGION_NUMBER) values ('East', 3)
> insert into SALES_REGION_SORT (REGION_NAME, REGION_NUMBER) values ('West', 4)
```

- load the SALES_REGION_SORT database table into the EUL as a new folder containing the items Name and Number (for more information, see [Chapter 4, "Creating and maintaining business areas"](#))
- create an item class called Sales Regions Customized Sort
- specify the Name item as the LOV item and the Number item as the alternative sort item for the item class

- specify Sales Regions Customized Sort as the item class associated with the Ordered Regions item that users will include in their worksheets
- when users sort a worksheet using the Ordered Regions item, the worksheet is sorted using the new order

Example 3: Using a calculated item and a DECODE statement to implement alternative sorts

You can use a calculated item with a DECODE statement to implement an alternative sort. You create two new items in an existing folder and specify the SQL statements for those items so that they contain the list of values and the sort order. You can then create an item class and specify the two items for the item class's LOV and alternative sort respectively.

If an item containing the list of values already exists in the folder, you can use that item.

For example, you might want Discoverer end users to include an item called Ordered Regions in their worksheets. When users sort the values in this item, you want the order of the sales regions to be North, South, East, West, Central (i.e. not the default alphabetical order). To implement this alternative sort using a calculated item and a DECODE statement:

- create a new calculated item called Sales Region Order in the folder that already contains the Ordered Regions item (the Ordered Regions item will provide the names of the regions)
- specify the following SQL statement as the formula for the item:

```
DECODE(Ordered Regions, 'North', 1, 'South', 2, 'East', 3, 'West', 4, 5)
```
- create an item class called Sales Regions Customized Sort
- specify Sales Regions Customized Sort as the item class associated with the Ordered Regions item that users will include in their worksheets
- when users sort a worksheet using the Ordered Regions item, the worksheet is sorted using the new order

Note: In performance terms, this is the least efficient mechanism.

What is drill to detail?

A drill to detail is a relationship between two or more items that might otherwise be unrelated. Drill to detail is achieved using an item class and gives Discoverer end users direct access to detail information about the currently selected row from other folders, without having to drill through hierarchical levels.

About setting up drill to detail

When you create a drill to detail item class, you specify the items that use that item class. The folders containing the items that share the item class do not have to be joined.

When a user selects the drill to detail option for one item, any folders containing other items that share the same drill to detail item class are available for drilling. If the user selects one of those folders, the worksheet contains all the items in the selected folder and conditions are applied for all the item classes that it has in common with the original sheet.

Note that for a hyperdrill to work, items that share the same drill to detail item class must have the same data type.

What are date items?

Date items are items that users include in worksheets to show date information.

Date items can be:

- items that are based on database columns with a date datatype
- calculated items that you have created
- items that Discoverer creates automatically when you specify a date hierarchy for a date item

What are date format masks?

A date format mask is an instruction about how to display date information.

The table below shows how a number of dates are stored in the database, and the affect of applying different date format masks to those dates.

Stored in the database:	DD-MM-YYYY	DD-MONTH	MM/DD	DD-Month-YY HH:MI AM
04-JUN-1999 13:03:45	04-06-1999	04-JUNE	06/04	04-June-99 1:03 PM
05-AUG-2000 23:14:12	05-08-2000	05-AUGUST	08/05	05-August-00 11:14 PM
15-JAN-2001 03:45:38	15-01-2001	15-JANUARY	01/15	15-January-01 3:45 PM
14-APR-2002 09:52:26	14-04-2002	14-APRIL	04/14	14-April-02 9:52 AM

As the Discoverer manager, you can specify a default date format mask for date items that users include in their worksheets.

Note that date format masks have no effect on the way the date is stored in the database.

When you create a new level in a date hierarchy template, you specify a date format for the new level. If you include that new level in the date hierarchy, Discoverer automatically creates a new date item in any folders with date items that use that date hierarchy.

The formula of the new date item is:

`EUL_DATE_TRUNC(item_name, format_mask)`

where:

- `EUL_DATE_TRUNC` is a Discoverer function to truncate dates to the format specified by `format_mask`
- `item_name` is the name of the item in the folder that uses the date hierarchy
- `format_mask` is the date format you specified for the new level in the date hierarchy template

The date format you specified for the new level in the date hierarchy template is also used to set the Format Mask property of the new date item.

About truncating date items and the EUL_DATE_TRUNC function

Truncating date items involves extracting and manipulating individual elements of a date (e.g. the month, the quarter, the year). Truncating date items is useful when comparing dates. Discoverer uses truncated date items to implement date hierarchies.

The EUL_DATE_TRUNC function truncates a date value to a specified date format mask. Using EUL_DATE_TRUNC has several benefits:

- it is easier to use EUL_DATE_TRUNC to truncate a date than the alternative method (which is to convert a date to a character string, remove part of the date, and then convert the character string back to a date)
- using EUL_DATE_TRUNC enables truncated dates to be sorted in correct chronological order (e.g. if the date format mask is Q, data for quarters is ordered within each year, and then by year)
- using EUL_DATE_TRUNC enables periods of time to be represented by a single date, which is useful when defining conditions

Discoverer uses EUL_DATE_TRUNC automatically when creating date hierarchies. You can also use EUL_DATE_TRUNC yourself when entering a formula for a date item.

Note that EUL_DATE_TRUNC always returns dates that comprise day, month, and year elements. If one of these elements is not included in the specified format mask, EUL_DATE_TRUNC uses 01-JAN-1900 as a default date to provide the missing elements. For example:

- if you apply EUL_DATE_TRUNC(date,'YYYY') to the dates 25-aug-1934, 11-nov-1934 and 03-feb-1933, the results are 01-jan-1934, 01-jan-1934 and 01-jan-1933 respectively
- if you apply EUL_DATE_TRUNC(date,'Mon') to the dates 25-aug-1934, 11-nov-1934 and 03-feb-1933, the results are 01-Aug-1900, 01-Nov-1900 and 01-Feb-1900 respectively
- if you apply EUL_DATE_TRUNC(date,'DD') to the dates 25-aug-1934, 11-nov-1934 and 03-feb-1933, the results are 25-jan-1900, 11-jan-1900 and 03-jan-1900 respectively

It is likely that the default values that EUL_DATE_TRUNC returns for the missing date elements will be inappropriate or not required. We therefore recommend that you specify (i.e in the EUL_DATE_TRUNC formula) all of the date elements that you want to display. Or put another way, that you only display those date elements that you specified in the EUL_DATE_TRUNC function call.

About applying conditions to truncated date items

You can include a truncated date item in a condition. The value you specify for the condition must be in the same format as the date format mask of the truncated date item.

Note the following:

- To reduce the risk of an item's date format mask being incompatible with the date format mask specified in the formula used to truncate the item, a warning is displayed whenever you attempt to change the date format mask of a date item that has an editable formula.
- The standard Oracle date format includes time (DD-MON-YY:HH24:MI:SS). When you load date items into the EUL, Discoverer gives them a default date format mask of DD-MON-YYYY (i.e. without the time). If time information is stored in a database column and a user applies a condition to a date item based on that column:
 - the time component is included in the condition (even though the default date format mask indicates that the time component is not included)
 - no results will be returned

To resolve this situation, change the date item's formula to truncate dates to DD-MON-YYYY.

Example 1

Assume the formula of a date item is `EUL_DATE_TRUNC(order_date,'YYYY')` and the item is included in a condition as `order_date='2001'`:

- the dates of all orders placed in 2001 will be returned by the item
- the date of each order will be shown as 01-JAN-2001 (because `EUL_DATE_TRUNC` uses the date 01-JAN-1900 to default date elements that are not specified in the format mask)

Example 2

Assume you have used `EUL_DATE_TRUNC` to truncate a date item called `order_quarter_date`, and you want to include the `order_quarter_date` item in a condition. If the date format mask of the truncated item is 'Q', the formula of the item must use the same date format mask (i.e. `EUL_DATE_TRUNC(order_quarter_date,'Q')`).

About drilling out to other applications

From a Discoverer perspective, a database column can contain data itself (e.g. regions, order numbers) or pointers to where data is located outside the database (e.g. names of files containing pictures of stores, URLs). You can set an item property to specify a pointer for Discoverer end users to drill to data outside the database.

To specify the location of the data of the column on which an item is based, use the item's Content Type property as follows (for more information, see "[Item Properties dialog](#)"):

- select NONE to specify that the column contains the data
- select FILE to specify that the column contains a pointer to information held outside the database (e.g. Microsoft Word documents, HTML pages)

When users include an item that has its Content Type property set to FILE, Discoverer displays the pointers contained in the column. If a user clicks the pointer, Discoverer launches the application associated with the pointer. For example:

- if the pointer is a filename, Discoverer launches the application associated with the filename extension and displays the specified file (e.g. if the filename extension is .doc, Discoverer launches Microsoft Word containing the specified file)
- if the pointer is a URL, Discoverer launches the user's web browser and displays the specified page

Notes

If the datatype of the column is LONG RAW, the column can contain different kinds of data, including:

- BFILE data - Locators to large binary files stored outside the database. BFILE data enables byte stream I/O access to external LOBs residing on the database server. BFILE data has a maximum size of 4 gigabytes.
- BLOB data - Binary large objects. BLOB data has a maximum size of 4 gigabytes.
- CLOB data - Character large objects containing single-byte characters. Both fixed-width and variable-width character sets are supported, both using the CHAR database Data Type. CLOB data has a maximum size of 4 gigabytes.
- NCLOB data - Character large objects containing multibyte characters. Both fixed-width and variable-width character sets are supported, both using the

NCHAR database Data Type. Stores national character set data. NCLOB data has a maximum size of 4 gigabytes.

If the datatype of the column on which an item is based is LONG RAW, Discoverer provides additional options for the item's Content Type property (i.e. options in addition to FILE and NONE). These options enable you to specify how Discoverer decides which application to launch to view the column's content. For example, if you select DOC as the item's Content Type property, Discoverer will launch the application associated with the .DOC extension (usually Microsoft Word).

How to edit item properties

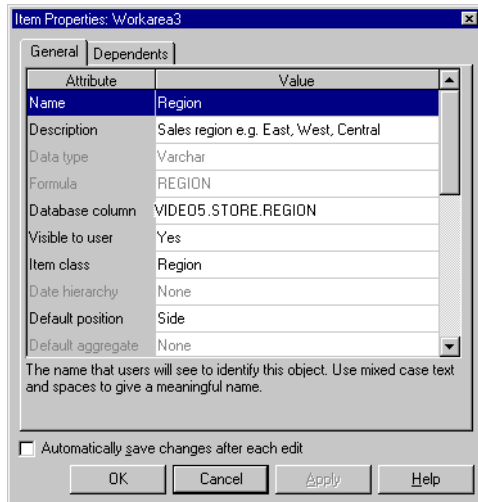
To edit item properties:

1. Click an item on the Data page and choose Edit | Properties to display the "Item Properties dialog".

You can select more than one item at a time by holding down the Ctrl key and clicking another item.

Note: Where you select multiple items, all properties that are common to each of the selected items are displayed. If the data for a field is not common to each of the selected items, the field is blank.

Figure 8–1 Item Properties dialog



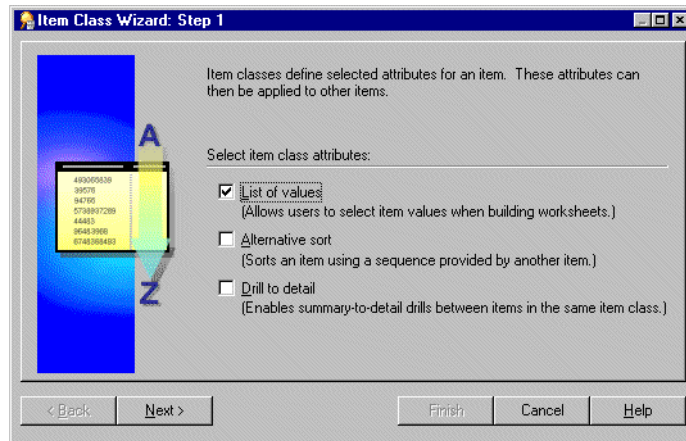
2. Make the required changes.
3. Click OK.

How to create a LOV item class

To create a LOV item class:

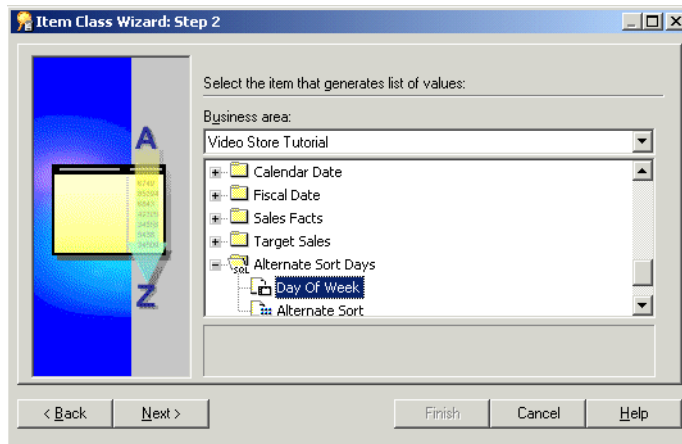
1. Choose Insert | Item Class to display the "Item Class Wizard dialog".
If Discoverer displays the "Item Class Wizard: Step 2" press the <Back button.

Figure 8–2 The Item Class Wizard dialog



2. Select the **List of Values** check box.
3. Click Next to display the "Item Class Wizard: Step 2".

Figure 8–3 *Item Class Wizard: Step 2 dialog*

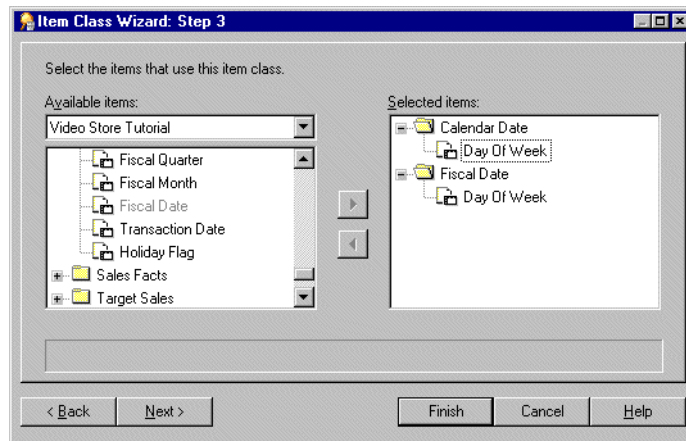


4. Select the business area that contains the item you want to use to generate the list of values.
5. Select the item that you want to use to generate the list of values.

Note: By default, Discoverer uses a `SELECT DISTINCT` query to retrieve a list of values. If you select an item in a folder with a large number of rows compared to the number of distinct values, then the query can be inefficient. It is more efficient to select an item from a smaller table (attached to the folder with a large number of rows) rather than using the large table itself. If a smaller table does not exist, it might be worth creating it to speed up the list of values process.

Alternatively if you have a small number of values, use a custom folder to create a local list of values within the End User Layer. For more information, see ["How to create a list of values using a custom folder"](#).

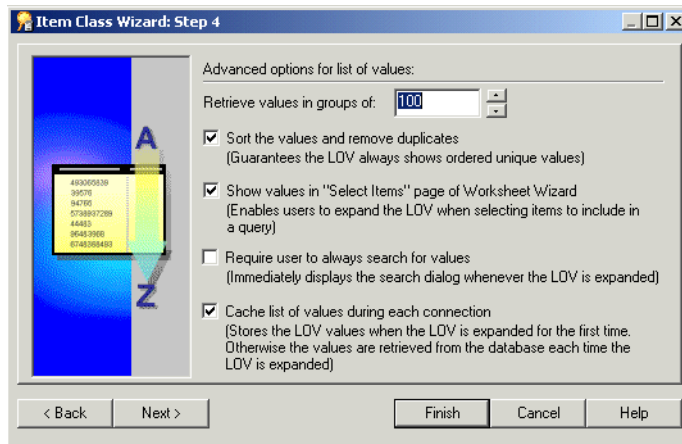
6. Click Next to display the ["Item Class Wizard: Step 3"](#) to select the items that use this item class.

Figure 8–4 Item Class Wizard: Step 3 dialog

Note: If you had also selected the **Drill to detail** check box on the first page of the Item Class Wizard, end users will be able to drill between any of the items that you select on this page.

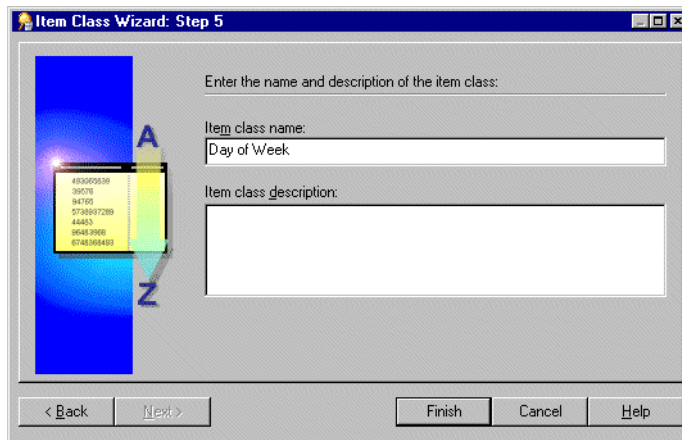
7. Move the items that use this item class, from the **Available items** list to the **Selected items** list.
8. Click **Next** to display the **"Item Class Wizard: Step 4"** to specify options controlling how LOVs are selected and displayed in Discoverer Plus.

Figure 8–5 Item Class Wizard: Step 4 dialog



9. Specify the number of values to retrieve in each group, and select other check boxes as required.
10. Click Next to display the "Item Class Wizard: Step 5" dialog and specify a name and description for the new item class.

Figure 8–6 Item Class Wizard: Step 5 dialog



11. Enter a name and description for your new item class.
12. Click Finish.

Discoverer creates a new List of Values item class.

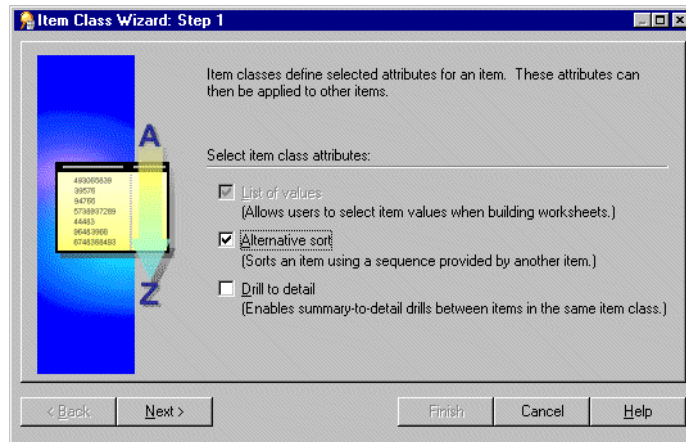
How to create an alternative sort item class

An alternative sort item class enables you to sort a list of values based on an alternative sort sequence.

To create an alternative sort item class:

1. Choose Insert | Item Class to display the "Item Class Wizard dialog".

Figure 8–7 The Item Class Wizard: Step 1 dialog

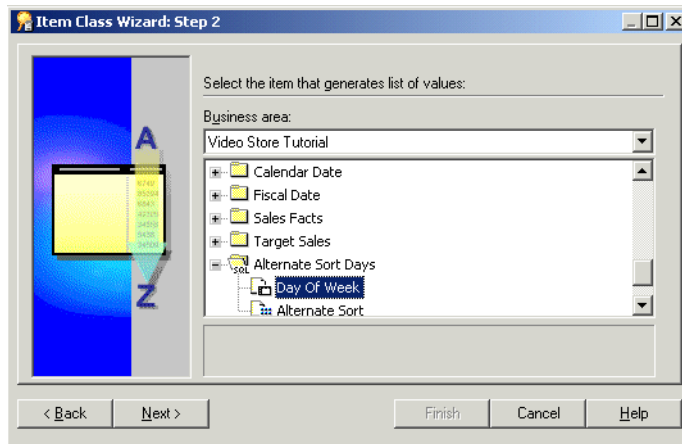


2. Select the **Alternative sort** check box.

Note: If you select the **Alternative sort** check box, the **List of values** check box is automatically selected.

3. Click Next to display the "Item Class Wizard: Step 2" dialog.

Figure 8–8 Item Class Wizard: Step 2 dialog

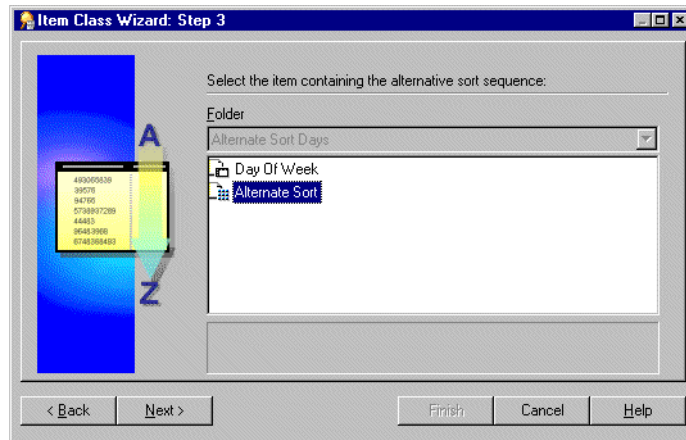


4. Select the business area that contains the item you want to use to generate the list of values.
5. Select the item that you want to use to generate the list of values.

Note: Discoverer uses a `SELECT DISTINCT` query to retrieve a list of values. If you select an item in a folder with a large number of rows compared to the number of distinct values, then the query can be inefficient. It is more efficient to select an item from a smaller table (attached to the folder with a large number of rows) rather than using the large table itself. If a smaller table does not exist, it might be worth creating it to speed up the list of values process.

Alternatively if you have a small number of values, use a custom folder to create a local list of values within the End User Layer. For more information, see ["How to create a list of values using a custom folder"](#).

6. Click Next to display the ["Item Class Wizard: Step 3"](#) dialog.

Figure 8–9 Item Class Wizard: Step 3 dialog

7. Select the item that contains the alternative sort sequence.

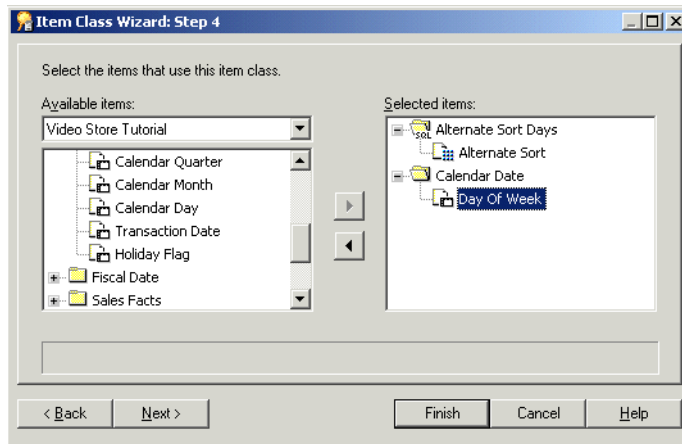
This item must:

- already exist in the database
- be in the same folder as the item that generates the list of values

8. Click Next to display the "Item Class Wizard: Step 4" dialog.

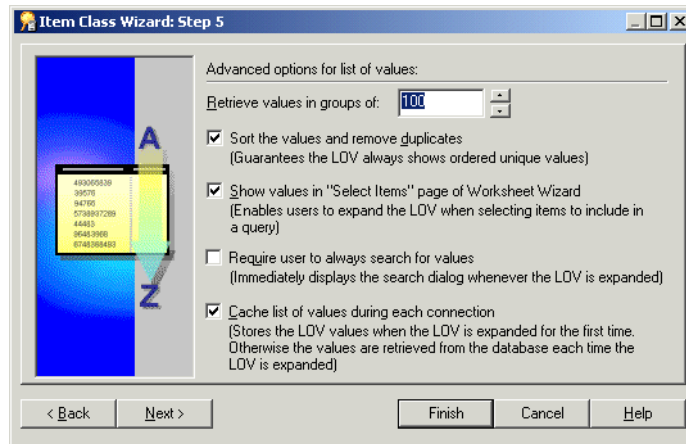
Hint: Alternatively, if you have a small number of values, use a custom folder to create a local list of values containing an alternative sort order within the End User Layer see "[Example 1: Using a custom folder to implement alternative sorts](#)".

Figure 8–10 Item Class Wizard: Step 4 dialog

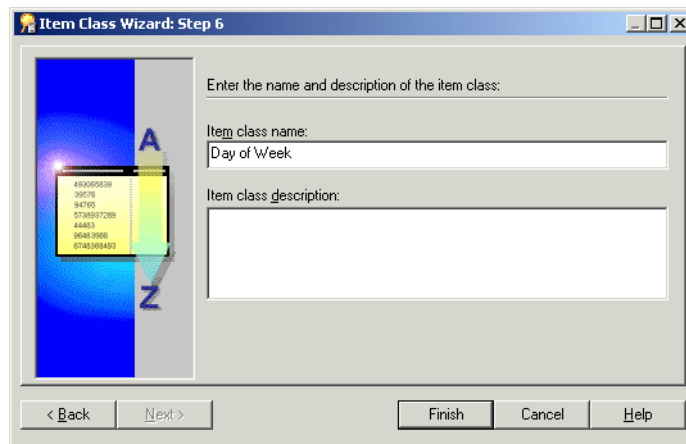


Note: If you selected the **Drill to detail** check box on the first page of the Item Class Wizard, end users will be able to drill between any of the items that you select on this page.

9. Move the items that use this item class, from the **Available items** list to the **Selected items** list.
10. Click Next to display the "Item Class Wizard: Step 5" to specify options controlling how LOVs are selected and displayed in Discoverer Plus.

Figure 8–11 Item Class Wizard: Step 5 dialog

11. Specify the number of values to retrieve in each group, and select other check boxes as required.
12. Click Next to display the "Item Class Wizard: Step 6".

Figure 8–12 Item Class Wizard: Step 6 dialog

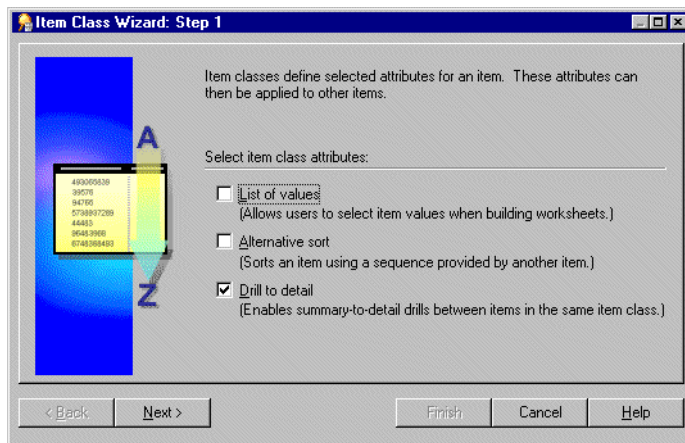
13. Enter a name and description for your new item class.
14. Click Finish.

How to create a drill to detail item class

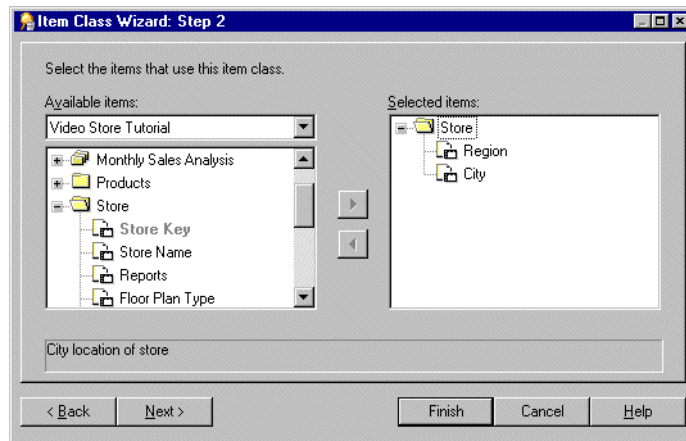
To create a drill to detail item class:

1. Choose Insert | Item Class to display the "Item Class Wizard dialog".

Figure 8–13 The Item Class Wizard: Step 1 dialog



2. Select the **Drill to detail** check box.
3. Click Next to display the "Item Class Wizard: Step 2" dialog.

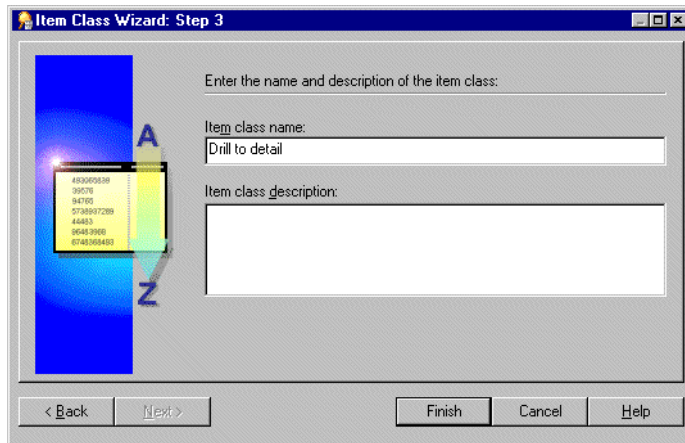
Figure 8–14 *Item Class Wizard: Step 2 dialog*

4. Move the items that use this item class, from the **Available items** list to the **Selected items** list.

Note: End users will be able to drill between any of the items that you select on this page.

5. Click Next to display the "Item Class Wizard: Step 3" dialog.

Figure 8–15 Item Class Wizard: Step 3 dialog



6. Enter a name and description for your new item class.
7. Click Finish.

How to create a list of values using a custom folder

This alternative method is useful if you have a small number of values. You can use a custom folder to create a local list of values within the End User Layer.

For example, if you want a list of values for North, South, East, and West, create a custom folder called Region_lov and type in the SQL statements suggested below.

1. In the Data page of the Workarea, choose Insert | Folder | Custom to display the "Custom Folder dialog".
2. Enter the following SQL statements into the Custom Folder dialog:

```
SELECT 'NORTH' REGION FROM sys.dual
UNION
SELECT 'SOUTH' REGION FROM sys.dual
UNION
SELECT 'EAST' REGION FROM sys.dual
UNION
SELECT 'WEST' REGION FROM sys.dual
```

This query creates one item Region, that can now be used as a list of values which will help optimize performance.

For more information about custom folders, see [Chapter 5, "What are custom folders?"](#).

3. Click Validate to validate the SQL statement.
4. Click OK.

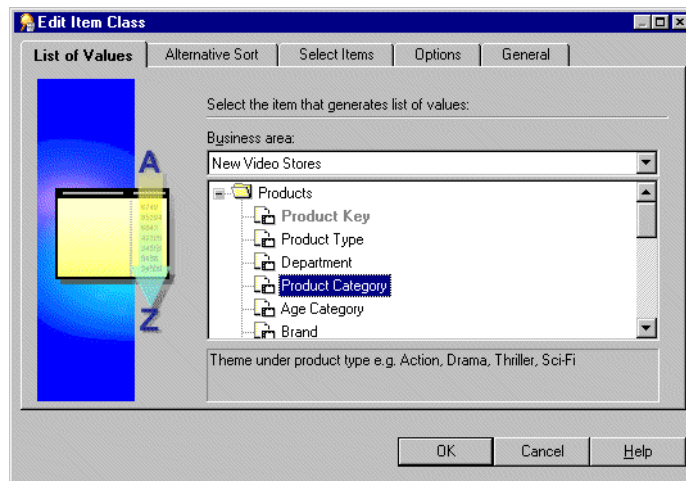
How to edit an item class

To edit an existing item class:

1. In the ["Workarea: Item Classes tab"](#), click on the item class that you want to edit and choose Edit | Edit... to display the Edit Item Class dialog.

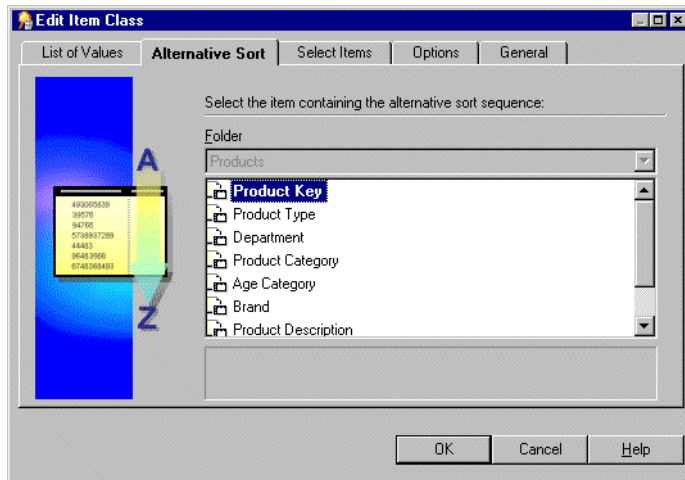
Note: The Edit Item Class dialog consists of five tabs. These resemble the pages in the Item Class Wizard and enable you to edit the settings you specified when you created the item class.

Figure 8–16 *Edit Item Class dialog: List of Values tab*



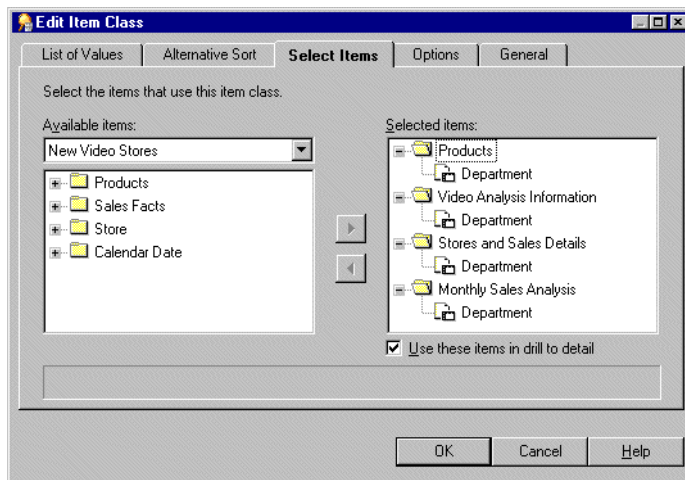
2. Display the ["Edit Item Class: List of values tab"](#) to change the list of values used in the selected item class.

Figure 8–17 Edit Item Class dialog: Alternative Sort tab



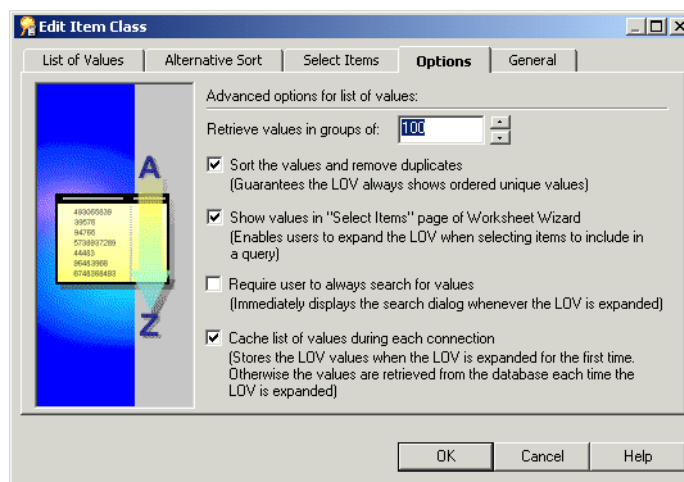
3. Display the "Edit Item Class: Alternative Sort tab" to change the alternative sort sequence assigned to the list of values for the selected item class.

Figure 8–18 Edit Item Class dialog: Select Items tab



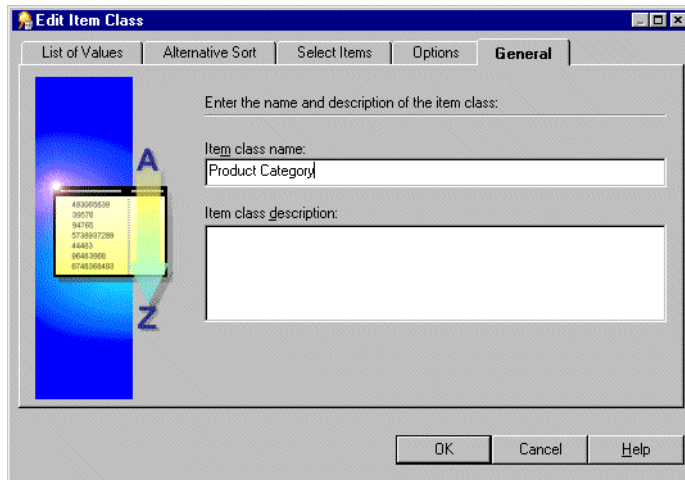
4. Display the "Edit Item Class: Select Items tab" to add or remove the items that use the selected item class.
5. Select the **Use these items in drill to detail** check box to enable drill to detail between the items that belong to this item class (otherwise, clear it).

Figure 8–19 Edit Item Class dialog: Options tab



6. Display the "Edit Item Class: Options tab" to set the advanced LOV options as required.

Figure 8–20 Edit Item Class dialog: General tab



7. Display the ["Edit Item Class: General tab"](#) to change the name and description of the selected item class.
8. Click OK.

How to add items to an item class

Use one of the following methods to add items to an item class:

- ["How to add items to an item class using drag and drop"](#)
- ["How to add items to an item class using the Edit Item Class dialog"](#)
- ["How to add items to an item class using the Item Properties dialog"](#)

How to add items to an item class using drag and drop

1. Choose Window | New Window to display a second Workarea.
2. Select the Data tab in one Workarea.
3. Display the Item Classes tab in the other Workarea.
4. Select the Item(s) that you want to add to an item class in the Data tab of the Workarea.

5. Drag the Items from the Data tab to the item class in the Item classes tab of the Workarea.
6. Close one of the Workarea windows.

How to add items to an item class using the Edit Item Class dialog

1. In the "[Workarea: Item Classes tab](#)" click on the item class to edit and choose Edit | Edit.
2. Display the "[Edit Item Class: Select Items tab](#)".
3. Move the items from the **Available items** list to the **Selected items** list to add them to this item class.

You can select more than one item at a time by holding down the Ctrl key and clicking another item.

Note: The **Available items** drop down list enables you to select items from any open business area.

4. Click OK.

For more information see "[How to edit an item class](#)".

How to add items to an item class using the Item Properties dialog

1. In the "[Workarea: Data tab](#)", select the item(s) to add to an item class.
2. Choose Edit | Properties to display the "[Item Properties dialog](#)".
3. Specify the item class for the selected item(s) to belong to using the Item class field.
4. Click OK.

For more information, see "[How to edit item properties](#)".

How to remove items from an item class

Use one of the following methods to remove items from an item class:

- "[How to remove items from an item class using a popup menu](#)"
- "[How to remove items from an item class using the Edit Item Class dialog](#)"
- "[How to remove items from an item class using the Item Properties dialog](#)"

How to remove items from an item class using a popup menu

1. Display the "[Workarea: Item Classes tab](#)".
2. Click the + symbol next to the item class you want to remove items from.
3. Click the + symbol to expand the **Items using this item class (with drill to detail)** object.
4. Select the items to remove from the item class.
You can select more than one item at a time by holding down the Ctrl key and clicking another item.
5. Right click one of the selected items and choose **Delete Item from Item Class** on the popup menu.
6. Discoverer Administrator displays the "[Confirm Delete dialog](#)".
For further information, see "[How to delete items and item classes](#)".

How to remove items from an item class using the Edit Item Class dialog

1. Click the "[Workarea: Item Classes tab](#)".
2. Click the item class to edit and choose Edit | Edit...
3. Display the "[Edit Item Class: Select Items tab](#)".
4. Move the items you want to remove from this item class from the **Selected items** list to the **Available items** list.
You can select more than one item at a time by holding down the Ctrl key and clicking another item.
5. Click OK.
For more information, see "[How to edit an item class](#)".

How to remove items from an item class using the Item Properties dialog

1. In the "[Workarea: Data tab](#)" select the item(s) to remove from an item class.
2. Choose Edit | Properties to display the "[Item Properties dialog](#)".
3. Specify None in the **Item class** field.
4. Click OK.
For more information, see "[How to edit item properties](#)".

How to view the items that use an item class

To view the items that use a specific item class:

1. In the "[Workarea: Item Classes tab](#)", click the + symbol next to the item class that you want to expand.

This reveals two objects under the item class.

- List of values
 - Items using this item class (with drill to detail)
2. Click the + symbol next to **Items using this item class (with drill to detail)** to display the list of items that belong to this item class.

How to view the list of values for an item

To view the list of values associated with an item:

1. In the "[Workarea: Data tab](#)" expand the item that has a list of values you want to view.

Notes

- Discoverer may warn you that retrieving the list of values may take a long time. When you retrieve a list of values Discoverer submits a SELECT DISTINCT query to the database (which selects the distinct set of values for the item). If there is a large number of values in the database, retrieving the list can take some time. The End User Layer has a record of the length of time it takes to retrieve the values. If this length of time is greater than 15 seconds, Discoverer displays a warning. You can change this limit in Discoverer Plus under Tools | Options | Query Governor.
- If the item you want to display a list of values for exists in more than one folder, choose the item in the folder that has the least number of rows. This will return the list of values in the shortest amount of time.

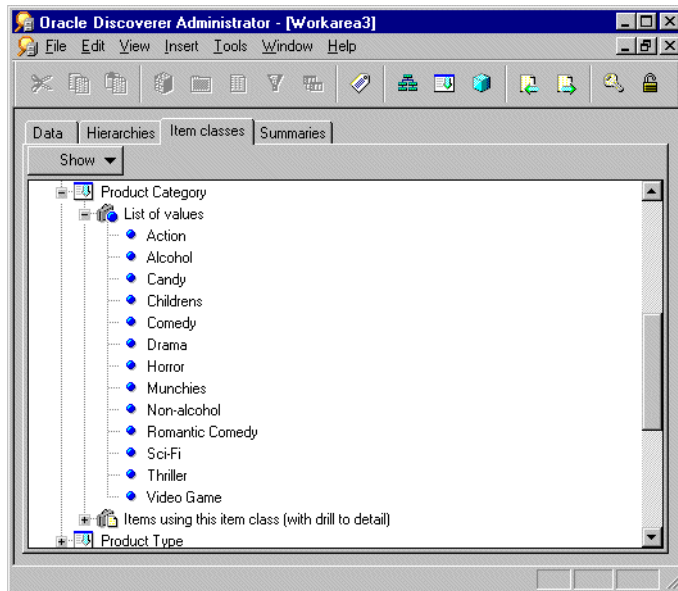
How to view the list of values for an item class

To view the list of values associated with an item class:

1. Display the "[Workarea: Item Classes tab](#)".
2. Click the + symbol to expand the item class whose list of values you want to view.

- This reveals two items under the item class:
- List of values
 - Items using this item class
3. Click the + symbol to expand the **List of values** object to display the list of values for the item class.

Figure 8–21 Workarea: Item classes tab displaying a list of values



Notes

- Discoverer may warn you that retrieving the list of values may take a long time. When you retrieve a list of values, Discoverer submits a `SELECT DISTINCT` query to the database (which selects the distinct set of values for the item). If there is a large number of values in the database, retrieving the list can take some time. The End User Layer has a record of the length of time it takes to retrieve the values. If this length of time is greater than 15 seconds, Discoverer displays a warning. You can change this limit in Discoverer Plus under **Tools | Options | Query Governor**.

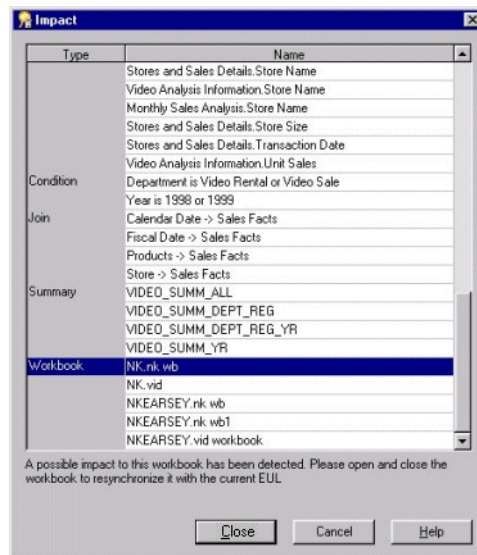
How to delete items and item classes

To delete items and item classes:

1. Select the item(s) or item class(es) to delete as follows:
 - select the items to delete from the "Workarea: Data tab"
 - select the item classes to delete from the "Workarea: Item Classes tab"

You can select more than one item or item class at a time by holding down the Ctrl key and clicking another one.
2. Choose Edit | Delete to open the "Confirm Delete dialog".
3. (optional) To see the objects that might be affected by deleting the items or item classes you selected for deletion:
 - a. Click Impact to display the "Impact dialog".

Figure 8–22 The Impact dialog



The Impact dialog enables you to review the other EUL objects that might be affected when you delete an item or item class.

Note: The Impact dialog does not show the impact on workbooks saved to the file system (i.e. in .dis files).

- b. (optional) Select a row in the Impact dialog to view text at the bottom of the list, indicating what affect the current action will have on the EUL object.
 - c. Click Close when you have finished reviewing the impact that the deletion will have.
4. Click Yes to confirm you want to delete the selected item(s) or item class(es).

Notes about maintaining items and item classes

Notes about items based on columns with user-defined datatypes

When a table is created, a datatype must be specified for each of the columns in the table. Oracle provides a number of built-in datatypes (e.g. number, date, varchar2) as well as several categories for user-defined datatypes (e.g. object types, varrays, nested tables). User-defined datatypes are sometimes called abstract datatypes. User-defined datatypes use Oracle built-in datatypes and other user-defined datatypes as the building blocks of types that model the structure and behavior of data in applications.

Note that when you create a Discoverer folder based on a table using the Load Wizard, any columns that have user-defined datatypes are ignored (i.e. no items are created in the folder).

If you want to include an attribute of a user-defined datatype as an item in a Discoverer folder, you must do one of the following:

- create a custom folder and define a column with a built-in datatype in the folder's SQL statement to access the attribute of the user-defined datatype on which you want to base the item (for more information about creating custom folders, see [Chapter 5, "How to create custom folders"](#))
- create a database view, define a column with a built-in datatype in the view definition to access the attribute of the user-defined datatype on which you want to base the item, and specify the view as the object on which to base a simple folder when using the Load Wizard (for more information about using the Load Wizard, see [Chapter 5, "How to create simple folders from the database"](#))

To access the attributes of a user-defined datatype, you will have to be familiar with the appropriate syntax. For more information about user-defined datatypes and accessing their attributes, see the Oracle documentation supplied with your version of the database.

Creating and maintaining joins

Creating and maintaining joins

This chapter explains how to implement joins using Discoverer Administrator, and contains the following topics:

- "What are joins?"
- "What are single item joins?"
- "What are multi-item joins?"
- "About joining more than two folders"
- "What are non-equi-joins?"
- "What are one-to-many joins, one-to-one joins, and many-to-many joins?"
- "About joining two folders using more than one join"
- "What effect do joins have on query results and query performance?"
- "Examples of how joins can affect query results from complex folders"
- "What are outer joins?"
- "How to create joins"
- "How to view or edit joins"
- "How to delete a join"
- "What are fan traps, and how does Discoverer handle them?"
- "Example of a fan trap"
- "What to do if you set up a fan trap inside a complex folder"
- "What to do if you have a data type mismatch in a join"

What are joins?

In Discoverer, a join relates two folders using one or more matching items. In the database, a join relates two tables using matching columns.

For example, consider the two tables DEPT and EMP.

Figure 9–1 EMP and DEPT tables

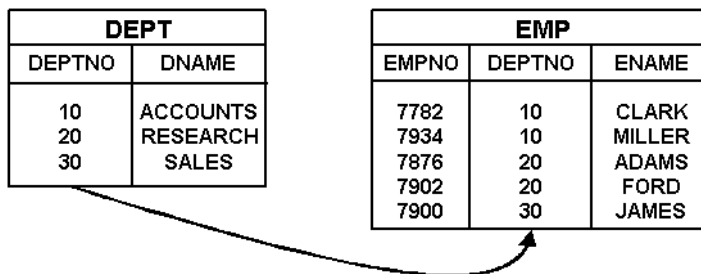
DEPT	
DEPTNO	DNAME
10	ACCOUNTS
20	RESEARCH
30	SALES

EMP		
EMPNO	DEPTNO	ENAME
7782	10	CLARK
7934	10	MILLER
7876	20	ADAMS
7902	20	FORD
7900	30	JAMES

Every department in the DEPT table has a department name and a department number. Every employee in the EMP table has a name and belongs to a department (which is identified by its department number).

To see the name of an employee and the name of the department in which they work, you must extract information from both tables. However, before you can extract information from both tables in the same query, a join must exist between the tables.

To define a join, you typically specify one column in one table that matches a column in the other table. In the case of the DEPT and EMP tables, the DEPTNO column in the DEPT table matches the DEPTNO column in the EMP table. In other words, the values in the DEPTNO column in the DEPT table have matching values in the DEPTNO column in the EMP table.

Figure 9–2 EMP and DEPT tables joined using the DEPTNO column


DEPT	
DEPTNO	DNAME
10	ACCOUNTS
20	RESEARCH
30	SALES

EMP		
EMPNO	DEPTNO	ENAME
7782	10	CLARK
7934	10	MILLER
7876	20	ADAMS
7902	20	FORD
7900	30	JAMES

A join typically comprises a master table and a detail table. The master table has one row for which there are many rows in the detail table. In the example above, the DEPT table is the master table and the EMP table is the detail table because each department can have many employees.

The matching column in the detail table is often referred to as the foreign key column.

When you create a join using Discoverer Administrator, you specify a join condition that identifies the item in the master folder and the matching item in the detail folder. It is important to make sure you:

- Define the join with the correct folder as the master. If a query uses two or more folders and you define the incorrect folder as the master, you might get misleading or incorrect results (for more information, see ["What are fan traps, and how does Discoverer handle them?"](#)).
- Choose the correct join option details. These details also determine whether summary folders can be used to speed up queries (for more information, see ["What effect do joins have on query results and query performance?"](#)).

Having defined a join between two folders:

- Discoverer end users can include items from both folders in the same worksheet in Discoverer Plus (and Discoverer Desktop)
- you can create complex folders and hierarchies in Discoverer Administrator that contain items from both folders

What are single item joins?

In Discoverer, a single item join relates two folders by specifying an item that is common to both folders in a join condition. A join condition is the combination of two join items related by a join operator. Typically, the join operator is the equals (=) sign and the join is therefore referred to as an equi-join (for more information about alternative join operators, see "[What are non-equi-joins?](#)").

For example, the schema below uses the common column DEPTNO to join the DEPT and EMP tables.

Figure 9–3 Example of two tables joined using a single item join

DEPT		EMP		
DEPTNO	DNAME	EMPNO	DEPTNO	ENAME
10	ACCOUNTS	7782	10	CLARK
20	RESEARCH	7934	10	MILLER
30	SALES	7876	20	ADAMS
		7902	20	FORD
		7900	30	JAMES

Every department in the DEPT table has a department name and a department number. Every employee in the EMP table has a name and belongs to a department (which is identified by its department number). To see the name of an employee and the name of the department in which they work, you need information from both the EMP table and the DEPT table.

Imagine that a Discoverer end user wants to see the name of every employee and the name of the department in which they work, as follows:

DNAME	ENAME
ACCOUNTS	CLARK
ACCOUNTS	MILLER
RESEARCH	ADAMS
RESEARCH	FORD
SALES	JAMES

In other words, DEPT.DNAME and EMP.ENAME.

The following SQL statement would achieve the required result:

```
select dname, ename
from dept, emp
where
dept.deptno=emp.deptno
```

To enable the Discoverer end user to see the required result, you can do either of the following:

- You can create a custom folder containing the above SQL statement (for more information, see "[How to create custom folders](#)").
- You can create a join with one join condition (i.e. a single item join) between DEPT.DEPTNO and EMP.DEPTNO (for more information, see "[How to create joins](#)").

Having defined the join:

- In Discoverer Administrator you can create a complex folder, then drag DNAME from DEPT and ENAME from EMP into the complex folder (for more information, see "[How to create complex folders](#)").
- The Discoverer end user can use the complex folder. Alternatively, the end user can select DNAME from DEPT and ENAME from EMP.

What are multi-item joins?

In Discoverer, a multi-item join relates two folders using more than one join condition, such that the join becomes true when all of the join conditions are met (for more information about join conditions, see "[What are single item joins?](#)").

For example, the schema below uses a combination of COUNTRY_CODE and PRODUCT_CODE to uniquely identify products.

Figure 9–4 Example of two tables joined using a multi-item join

VIDEO_PRODUCTS		
COUNTRY_CODE	PRODUCT_CODE	DESCRIPTION
10	1000	FR GAME RENTAL
10	2000	FR VIDEO RENTAL
10	3000	FR VIDEO SALES
20	1000	US GAME RENTAL
20	2000	US VIDEO RENTAL
30	1000	UK GAME RENTAL
30	2000	UK VIDEO RENTAL

VIDEO_SALES			
SALES_ORDER_ID	COUNTRY_CODE	PRODUCT_CODE	VALUE
1	30	1000	10
2	20	2000	19
3	10	3000	25
4	10	1000	8

Every product in the VIDEO_PRODUCTS table has a description and is uniquely identified by the combination of a country code and a product code (note that product codes are only unique within each country code). Every sale in the VIDEO_SALES table is of a particular product (which is identified by its country code and product code). To see the value of a sale and a description of the product that was sold, you need information from both the VIDEO_SALES table and the VIDEO_PRODUCTS table.

Imagine that a Discoverer end user wants to see the value of each sale and a description of the product that was sold, as follows:

Description	Value
UK GAME RENTAL	10
US VIDEO RENTAL	19
FR VIDEO SALES	25
FR GAME RENTAL	8

In other words, VIDEO_PRODUCTS.DESCRPTION and VIDEO_SALES.VALUE.

The following SQL statement would achieve the required result:

```
select description, value
from video_products, video_sales
where
video_products.country_code=video_sales.country_code
and
```

```
video_products.product_code=video_sales.product_code
```

To enable the Discoverer end user to see the required result, you can do either of the following:

- You can create a custom folder containing the above SQL statement (for more information, see ["How to create custom folders"](#)).
- You can create a join with two join conditions (i.e. a multi-item join) between VIDEO_PRODUCTS.COUNTRY_CODE and VIDEO_SALES.COUNTRY_CODE, and between VIDEO_PRODUCTS.PRODUCT_CODE and VIDEO_SALES.PRODUCT_CODE (for more information, see ["How to create joins"](#)).

Having defined the multi-item join:

- In Discoverer Administrator you can create a complex folder, then drag DESCRIPTION from VIDEO_PRODUCTS and VALUE from VIDEO_SALES into the complex folder (for more information, see ["How to create complex folders"](#)).
- The Discoverer end user can use the complex folder. Alternatively, the end user can select DESCRIPTION from VIDEO_PRODUCTS and VALUE from VIDEO_SALES.

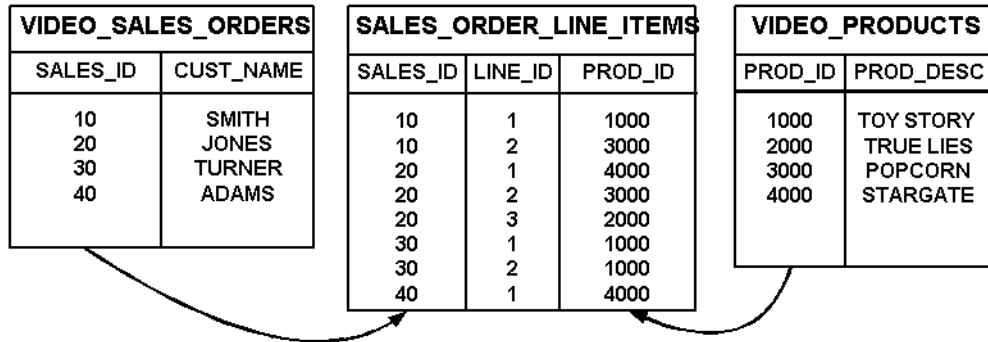
Note: A join that uses more than one column in each table to uniquely identify a row is also referred to as a composite join key.

About joining more than two folders

To join more than two folders in Discoverer, you must define a separate join between each of the folders you want to join.

For example, the schema below uses two joins to relate three tables. One join relates the VIDEO_SALES_ORDERS table with the SALES_ORDER_LINE_ITEMS table and the other join relates the VIDEO_PRODUCTS table with the SALES_ORDER_LINE_ITEMS table.

Figure 9–5 Example of three tables joined using two joins



Every sales order in the VIDEO_SALES_ORDERS table is for a particular customer (and is uniquely identified by a sales id). As shown in the SALES_ORDER_LINE_ITEMS table, every sales order comprises one or more line items and each line item is for a particular product. Every product in the VIDEO_PRODUCTS table has a description (and is uniquely identified by a product id).

Imagine that a Discoverer end user wants to see the customer’s name and a description of what they have been buying, as follows.

Customer name	Product description
TURNER	TOY STORY
TURNER	TOY STORY
JONES	STARGATE
JONES	POPCORN
JONES	TRUE LIES
SMITH	POPCORN
SMITH	TOY STORY
ADAMS	STARGATE

In other words, VIDEO_SALES_ORDERS.CUST_NAME and VIDEO_PRODUCTS.PROD_DESC.

The following SQL statement would achieve the required result:


```

select cust_name, prod_desc
from video_sales_orders, sales_order_line_items, video_products
where
video_sales_orders.sales_id=sales_order_line_items.sales_id
and
sales_order_line_items.prod_id=video_products.prod_id

```

To enable the Discoverer end user to see the required result, you can do either of the following:

- You can create a custom folder containing the above SQL statement (for more information, see ["How to create custom folders"](#)).
- You cannot use the Discoverer Administrator Join Wizard to create a single join that joins more than two tables. Instead, you must create two separate joins, one between VIDEO_SALES_ORDERS and SALES_ORDER_LINE_ITEMS, and a second between SALES_ORDER_LINE_ITEMS and VIDEO_PRODUCTS (for more information, see ["How to create joins"](#)).

Having defined two separate joins:

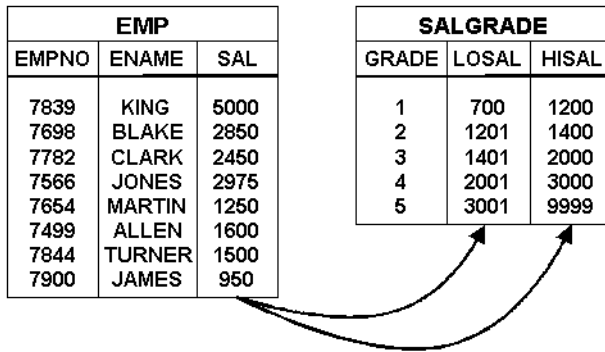
- In Discoverer Administrator you can create a complex folder, then drag CUST_NAME from VIDEO_SALES_ORDERS, one item from SALES_ORDER_LINE_ITEMS, and PROD_DESC from VIDEO_PRODUCTS into the complex folder. Having selected the item from SALES_ORDER_LINE_ITEMS, you can subsequently remove the item to get the two item folder you want (for more information, see ["How to create complex folders"](#)).
- The Discoverer end user can use the complex folder. Alternatively, the end user can select CUST_NAME from VIDEO_SALES_ORDERS, one item from SALES_ORDER_LINE_ITEMS, and PROD_DESC from VIDEO_PRODUCTS. Having selected the item from SALES_ORDER_LINE_ITEMS, the end user can subsequently remove the item to get the two column worksheet they want.

What are non-equi-joins?

In Discoverer, a non-equi-join enables you to join two folders where there is no direct correspondence between columns in the tables. A non-equi-join relates two folders using one or more join conditions that use non-equi-join operators.

For example, the schema below uses a non-equi-join to join the EMP and SALGRADE tables because there are no matching columns in the two tables.

Figure 9–6 Example of two tables joined using a non-equi-join



An employee's grade depends on their salary. Employees earning between 700 and 1200 are in grade 1, those earning between 1201 and 1400 are in grade 2, and so on.

Imagine that a Discoverer end user wants to see the grade of each employee, as follows:

ENAME	GRADE
KING	5
BLAKE	4
CLARK	4
JONES	4
MARTIN	2
ALLEN	3
TURNER	3
JAMES	1

In other words, EMP.ENAME and SALGRADE.GRADE.

The following SQL statement would achieve the required result:

```
select ename, grade
from emp, salgrade
where
emp.sal >= salgrade.losal
```

and
emp.sal<=salgrade.hisal

To enable the Discoverer end user to see the required result, you can do either of the following:

- You can create a custom folder containing the above SQL statement (for more information, see "[How to create custom folders](#)").
- You can create a join with two non-equi-join conditions, one between EMP.SAL and SALGRADE.LOSAL and the other between EMP.SAL and SALGRADE.HISAL (for more information, see "[How to create joins](#)").

Having defined the join:

- In Discoverer Administrator you can create a complex folder, then drag SAL from EMP and GRADE from SALGRADE into the complex folder (for more information, see "[How to create complex folders](#)").
- The Discoverer end user can use the complex folder. Alternatively, the end user can select ENAME from EMP and GRADE from SALGRADE.

What are one-to-many joins, one-to-one joins, and many-to-many joins?

One-to-many joins are the most common type of join. With a one-to-many join, one row in the master folder is joined to multiple rows in the detail folder.

One-to-one joins are joins between two folders where both items used in the join are primary keys. Therefore only one row in one folder will join to only one (or no) rows in the other folder. There is no real master and detail in this case, because each row in the master table can correspond to no more than one row in the detail table. Occasionally, one-to-one joins are a valid construct. Discoverer enables you to specify that a join is a one-to-one join.

It is possible to query a master folder with multiple detail folders, provided that all but one of the detail folders are joined with one-to-one joins. If more than two detail folders are joined to the master folder using one-to-many joins (also known as a fan trap schema), a row in the master folder might join to many rows in the detail tables, resulting in a Cartesian product. Fan trap schemas are resolved in Discoverer to prevent them returning unexpected results. For more information, see "[What are fan traps, and how does Discoverer handle them?](#)".

Many-to-many joins are not supported directly in Discoverer (or in any relational system). However, many-to-many joins can always be reworked and transformed

into multiple one-to-many joins. Very occasionally, a many-to-many join is a valid construct.

About joining two folders using more than one join

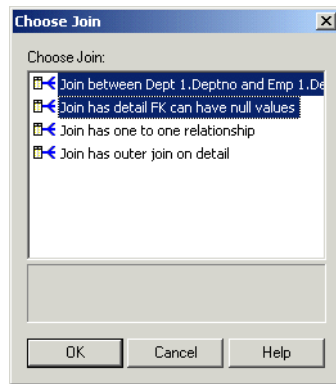
You might want to join two folders using more than one join when creating a complex folder. For example, you might create a number of complex folders that contain the same items, but each complex folder uses one or more joins. Each one of these joins can be defined using different join options.

The following table illustrates how you can join two folders (e.g. emp and dept) using four different joins. You can choose one or more of these joins when adding items to complex folders.

Complex folder name	Master folder join item	Join operator	Detail folder join item	Join options used for the join
Complex1	emp.deptno	=	dept.deptno	No options selected
Complex2	emp.deptno	=	dept.deptno	Detail foreign key can have null values
Complex3	emp.deptno	=	dept.deptno	One-to-one relationship
Complex4	emp.deptno	=	dept.deptno	Outer join on detail folder

When you create a complex folder and drag items from two folders that have more than one join between the two folders, Discoverer Administrator displays the Choose Joins dialog where you can choose one or more joins to use.

Figure 9–7 Choose Join dialog



For more information, see "[How to create complex folders](#)".

When Discoverer Plus or Discoverer Desktop users create worksheets using items from multiple folders, if end users choose items from two folders joined using more than one join, Discoverer does one of the following:

- Discoverer uses all of the available joins
 - This occurs if you select the **Disable multiple join path detection** option in Discoverer Plus or Discoverer Desktop.
- Discoverer displays the Join Folders dialog enabling you to select one or more joins
 - This occurs if you clear the **Disable multiple join path detection** option in Discoverer Plus or Discoverer Desktop.

For more information, see the *Oracle Application Server Discoverer Plus User's Guide*.

What effect do joins have on query results and query performance?

In some circumstances, you will always want Discoverer to use a join when querying a master folder and a detail folder. For example:

- you might want a query to return values from both the master folder and the detail folder
- you might want a query to return only those rows from the detail folder that have matching values in the master folder

Resolving joins is relatively time-consuming, so returning results from such a query might be relatively slow.

In other circumstances, it will not be necessary for Discoverer to query the master folder as well as the detail folder. For example:

- if you know that values in the detail folder always have corresponding values in the master folder
- if you know that you will always want the query to return all of the detailed values from the detail folder regardless of whether values exist in the master folder

If you set the appropriate option to indicate that Discoverer does not need to query the master folder, query performance will improve. However, be aware that not querying the master table might give you unexpected results. If you are not sure whether to include the master folder, see ["Examples of how joins can affect query results from complex folders"](#).

If you combine two or more folders in a complex folder (i.e. using a join), Discoverer can improve query performance by detecting and removing joins that are not required (a process known as join trimming). If the SQLJoinTrim Discoverer registry setting is enabled (i.e. if it is set to the default value of 1), Discoverer will remove joins from a query when both of the following conditions are met:

- if Discoverer can return the requested rows without using the join
- if you select the **Detail item values always exist in master folder** option for the join (for more information, see ["Examples of how joins can affect query results from complex folders"](#))

For more information about Discoverer registry settings, see ["What are Discoverer registry settings?"](#).

Discoverer will never use a summary folder to satisfy a query that uses a join with the **Detail item values might not exist in master folder** option selected (for more information, see the ["Join Wizard: Step 2 dialog"](#)).

Examples of how joins can affect query results from complex folders

The examples below assume that you have used Discoverer Administrator to create a complex folder called Emp_and_Dept. The complex folder is based on the DEPT and EMP tables with the join condition DEPT.DEPTNO=EMP.DEPTNO.

Consider the following two scenarios:

- **Scenario One**

In Scenario One, employees in the EMP table must always belong to one of the departments in the DEPT table:

- the DEPT table contains rows for department 10 (Accounts), department 20 (Research), and department 30 (Sales)
- the EMP table contains rows for Clark (an employee of department 10), Smith (an employee of department 20), and Allen (an employee of department 30)

Figure 9–8 Scenario One: An example of a schema where the rows returned do not depend on whether the master folder is included in the query

DEPT		EMP		
DEPTNO	DNAME	EMPNO	DEPTNO	ENAME
10	ACCOUNTS	7782	10	CLARK
20	RESEARCH	7369	20	SMITH
30	SALES	7499	30	ALLEN

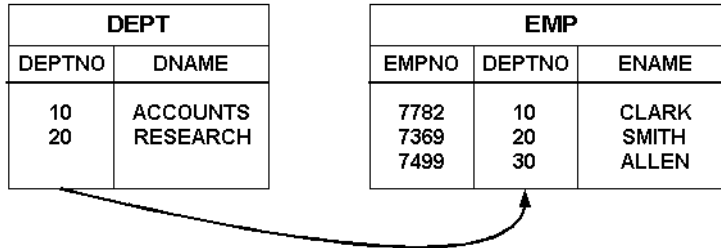
This scenario illustrates a schema in which a query on ENAME produces the same results, regardless of whether you include the master folder in the query.

- **Scenario Two**

In Scenario Two, employees in the EMP table need not belong to a department in the DEPT table, as follows:

- the DEPT table contains rows for department 10 (Accounts) and department 20 (Research)
- the EMP table contains rows for Clark (an employee of department 10), Smith (an employee of department 20), and Allen (a former employee of department 30, which no longer exists)

Figure 9–9 Scenario Two: An example of a schema where the rows returned depend on whether the master folder is included in the query



This scenario illustrates a schema in which a query on ENAME might produce different results, depending on whether you include the master folder in the query.

Example 1: Excluding the master folder always possible

You will want to exclude the master folder from a query when including the master folder will either make no difference to the results, or when including the master folder will not return the required results.

Note: Excluding the master folder from a query (that uses only items from a complex folder), means that Discoverer Plus or Discoverer Desktop does not use the join between the master and detail folder. Discoverer does not use the join when you select query items from a complex folder (when creating a worksheet in Discoverer Plus or Discoverer Desktop), and the query items come only from the detail folder (e.g. EMP).

Imagine that a Discoverer end user wants to see the name of all the employees in the EMP table by selecting the ENAME item from the Emp_and_Dept complex folder.

In Scenario One, the required results are as follows:

ENAME
CLARK
SMITH
ALLEN

Including the master folder in the query will make no difference to the results because all of the employees will be returned by the query. To improve query performance, you can specify that Discoverer does not query the master folder by selecting the **Detail items always exist in the master folder** option in the ["Join Wizard: Step 2 dialog"](#). Providing that the SQLJoinTrim Discoverer registry setting is also enabled, Discoverer will not query the master folder (for more information, see ["What are Discoverer registry settings?"](#)).

In Scenario Two, the required results are as follows:

ENAME
CLARK
SMITH
ALLEN

Including the master folder in the query will only return those employees with department numbers that match department numbers in the DEPT table. But the Discoverer end user wants to see all employees in the EMP table. To return all the employees in the EMP table, you can specify that Discoverer does not query the master folder by selecting the **Detail items always exist in the master folder** option in the ["Join Wizard: Step 2 dialog"](#). Providing that the SQLJoinTrim Discoverer registry setting is also enabled, Discoverer will not query the master folder (for more information, see ["What are Discoverer registry settings?"](#)).

Example 2: Excluding the master folder might be possible

You will want to include the master folder in a query when excluding the master folder will not return the required results from the detail table.

Note: Including the master folder in a query (that uses only items from a complex folder), means that Discoverer Plus or Discoverer Desktop uses the join between the master and detail folder. Discoverer uses a join when you select query items from a complex folder (when creating a worksheet in Discoverer Plus or Discoverer Desktop), and the query items come from either the master or the detail folder (e.g. DEPT and EMP respectively).

Imagine that a Discoverer end user wants to see the current employees in the EMP table by selecting the ENAME item from the Emp_and_Dept complex folder. Any employees that belong to departments that are not in the DEPT table are not current employees, and are therefore not required.

In Scenario One, the required results are as follows:

ENAME
CLARK
SMITH
ALLEN

Including the master folder in the query will make no difference to the results because all of the employees belong to a department. To improve query performance, you can specify that Discoverer does not query the master folder by selecting the **Detail item values always exist in the master folder** option in the ["Join Wizard: Step 2 dialog"](#). Providing that the SQLJoinTrim Discoverer registry setting is also enabled, Discoverer will not query the master folder (for more information, see ["What are Discoverer registry settings?"](#)).

In Scenario Two, the required results are as follows:

ENAME
CLARK
SMITH

Including the master folder in the query will only return those employees with department numbers that match department numbers in the DEPT table, which is exactly what the Discoverer end user wants. You can specify that Discoverer always queries the master folder by selecting the **Detail item values might not exist in the master folder** option in the ["Join Wizard: Step 2 dialog"](#).

Example 3: Excluding the master folder never possible

You will always want to include the master folder in a query if you want the results to contain information from both the master folder and the detail folder.

Note: Including the master folder in a query (that uses only items from a complex folder), means that Discoverer Plus or Discoverer Desktop uses the join between the master and detail folder. Discoverer uses a join when you select query items from a complex folder (when creating a worksheet in Discoverer Plus or Discoverer Desktop), and the query items come from either the master folder or the detail folder or from both folders (e.g. DEPT and EMP).

Imagine that a Discoverer end user wants to see employees and the departments to which those employees belong by selecting the ENAME item and the DNAME item from the Emp_and_Dept complex folder.

In Scenario One, the required results are as follows:

ENAME	DNAME
CLARK	ACCOUNTS
SMITH	RESEARCH
ALLEN	SALES

Including the master folder in the query is essential to return the names of the departments. Discoverer will include the master folder in the query even if you have selected the **Detail item values always exist in the master folder** option in the ["Join Wizard: Step 2 dialog"](#).

In Scenario Two, the required results are as follows:

ENAME	DNAME
CLARK	ACCOUNTS
SMITH	RESEARCH

Including the master folder in the query is essential to return the names of the departments. Discoverer will include the master folder in the query even if you have selected the **Detail item values always exist in the master folder** option in the ["Join Wizard: Step 2 dialog"](#).

Note that Allen will only be returned (with a null value for the department name) if you select the **Outer join on master** option in the ["Join Wizard: Step 2 dialog"](#) (for more information, see ["What are outer joins?"](#)).

What are outer joins?

Outer joins are SQL constructs that enable you to return rows from one table when there are no matching rows in a table to which it is joined.

Consider the following scenario:

- the master table DEPT contains rows for department 10 (ACCOUNTS), department 20 (RESEARCH) and department 40 (OPERATIONS)

- the detail table EMP contains rows for Clark (department 10), Smith (department 20) and Allen (a former employee of department 30, which no longer exists)

Figure 9–10 Master and detail tables DEPT and EMP, where the rows returned are determined by the position of the outer join construct in the query

DEPT	
DEPTNO	DNAME
10	ACCOUNTS
20	RESEARCH
40	OPERATIONS

EMP		
EMPNO	DEPTNO	ENAME
7782	10	CLARK
7369	20	SMITH
7499	30	ALLEN

The following examples use the schema in the above figure to illustrate how the position of the outer join determines the rows returned from a query.

Example 1 - Outer join placed on the master table

Imagine that a Discoverer end user wants to see all employee records, even when an employee does not belong to a department. The required results are as follows:

DNAME	ENAME
ACCOUNTS	CLARK
RESEARCH	SMITH
<NULL>	ALLEN

The following SQL statement would achieve the required result:

```
select dname, ename
from dept, emp
where
dept.deptno (+)=emp.deptno
```

When the outer join is placed on the master table, the database returns each detail row for which there is no matching master row (as well as all matching detail and master rows). In the SQL statement, the plus (+) symbol signifies the outer join.

To enable the Discoverer end user to see the required result, you can do either of the following:

- You can create a custom folder containing the above SQL statement (for more information, see ["How to create custom folders"](#)).
- You can create a join with a single join condition between DEPT.DEPTNO and EMP.DEPTNO and select both the **Detail items might not exist in the master folder** option and the **Outer join on master** option in the ["Join Wizard: Step 2 dialog"](#) (for more information about creating joins, see ["How to create joins"](#)).

Having defined the join:

- In Discoverer Administrator you can create a complex folder, then drag DNAME from DEPT and ENAME from EMP into the complex folder (for more information, see ["How to create complex folders"](#)).
- The Discoverer end user can use the complex folder. Alternatively, the end user can select DNAME from DEPT and ENAME from EMP.

Example 2 - Outer join placed on the detail table

Imagine that a Discoverer end user wants to see all department records even when a department does not have any employees. The required results are as follows:

DNAME	ENAME
ACCOUNTS	CLARK
RESEARCH	SMITH
OPERATIONS	<NULL>

The following SQL statement would achieve the required result:

```
select dname, ename
from dept, emp
where
dept.deptno=emp.deptno(+)
```

When the outer join is placed on the detail table, the database returns each master row for which there is no matching detail row (as well as all matching master and detail rows). In the SQL statement, the plus (+) symbol signifies the outer join.

To enable the Discoverer end user to see the required result, you can do either of the following:

- You can create a custom folder containing the above SQL statement (for more information, see ["How to create custom folders"](#)).
- You can create a join with a single join condition between DEPT.DEPTNO and EMP.DEPTNO and select **Outer join on detail** in the ["Join Wizard: Step 2 dialog"](#) (for more information about creating joins, see ["How to create joins"](#)).

Having defined the join:

- In Discoverer Administrator you can create a complex folder, then drag DNAME from DEPT and ENAME from EMP into the complex folder (for more information, see ["How to create complex folders"](#)).
- The Discoverer end user can use the complex folder. Alternatively, the end user can select DNAME from DEPT and ENAME from EMP.

How to create joins

You create a join to enable end users to include items from different folders in the same worksheet.

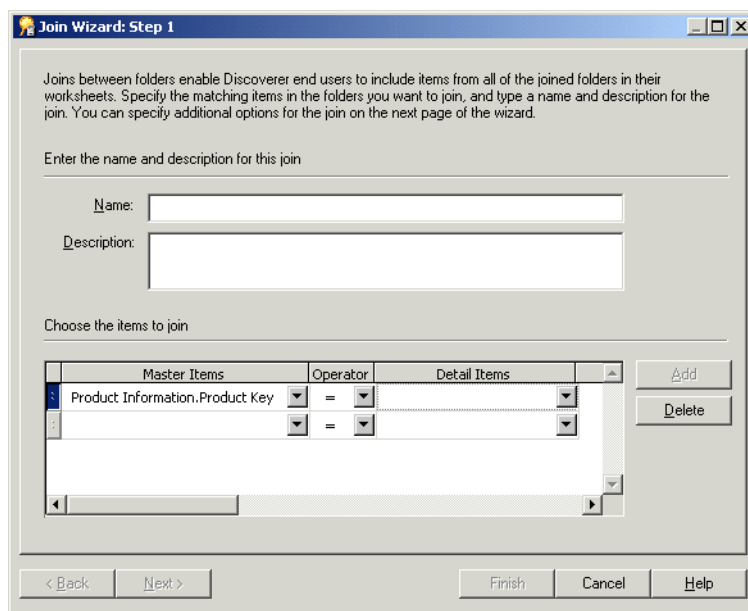
To create a join:

1. Display the ["Workarea: Data tab"](#) and select the item in the master folder that will match an item in the detail folder.

Hint: For more information about which is the master and detail folder, see ["What are joins?"](#).

2. Choose Insert | Join to display the ["Join Wizard: Step 1 dialog"](#).

The master item is displayed in the **Master Items** field.

Figure 9–11 Join Wizard: Step 1 dialog

Hint: If you want to change the folder and item in the **Master Items** field, choose the **More items** option at the bottom of the drop down list.

3. Click the **Operator** down arrow and select a join operator from the drop down list to specify the join type.
4. Click the **Detail Items** down arrow to display the "New Join dialog".
5. Select the folder and the detail item for the join.

You can choose a detail item from a folder in the same business area or in any other open business area.

By specifying a master item, a detail item, and a join operator, you have created a join condition. Joins that have only one join condition are referred to as single-item joins (for more information, see "[What are single item joins?](#)").

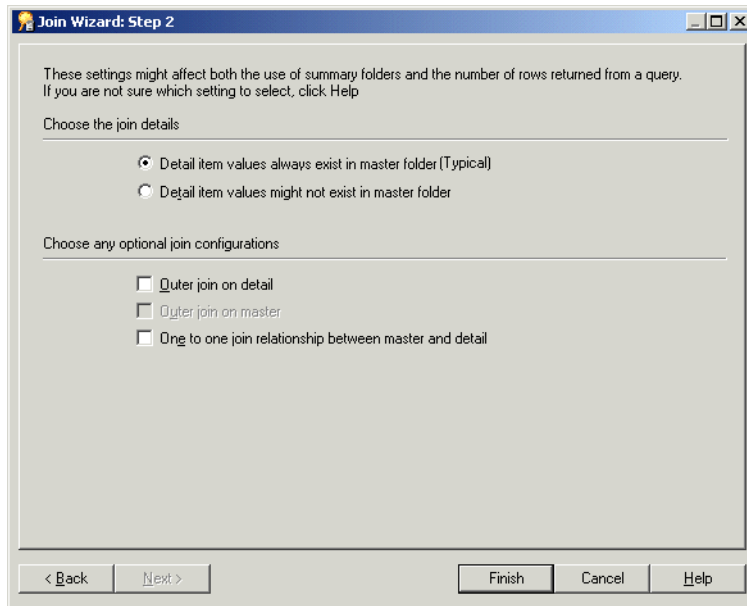
Hint: If you want to change the folder and item in the **Detail Items** field, choose the **More items** option at the bottom of the drop down list.

In some circumstances, you will need to create more than one join condition (for more information, see ["What are multi-item joins?"](#)).

6. (optional) To create a multi-item join:
 - a. Click Add to display a new row for a new join condition.
 - b. Use the drop down lists for **Master Items** and **Detail Items** to select a new pair of items from the same master and detail folders as the previous join condition.

Note: If you specify a master or detail item from a folder that was not included in the previous join condition, the previous join condition is removed.
 - c. Add new join conditions until you have specified all the matching items in the master folder and the detail folder.
7. Click Next to display the ["Join Wizard: Step 2 dialog"](#).

Figure 9–12 *Join Wizard: Step 2 dialog*



8. Select the join details for this join as follows:
 - **Detail item values always exist in the master folder (Typical)**

Select this radio button to improve query performance (for more information, see ["What effect do joins have on query results and query performance?"](#)).
 - **Detail item values might not exist in the master folder**

Select this radio button if you cannot be sure that all the values in the detail folder have matching values in the master folder. Note that selecting this option might return unexpected results (for more information, see ["What effect do joins have on query results and query performance?"](#)).
9. (optional) Select any of the following options for this join, as required:
 - **Outer join on detail**

Select this check box to display master rows that have no corresponding detail items, as well as all matching master and detail rows.
 - **Outer join on master**

Select this check box to display detail rows that have no corresponding master, as well as all matching detail and master rows. This check box is only available if the **Detail item values might not exist in the master folder** option is selected.
 - **One to one relationship between master and detail**

Select this check box to specify that there is a one to one relationship between master and detail tables.

Note: Clear this check box if you are creating an outer join.

For more information about the above options, see:

 - ["What are outer joins?"](#)
 - ["What are one-to-many joins, one-to-one joins, and many-to-many joins?"](#)
 - ["Join Wizard: Step 2 dialog"](#)
10. Click Finish to save the changes and close the dialog.

Discoverer Administrator creates the join between the two folders. The join icon is shown below both folders in the Workarea.

Notes

- To include a function or a literal (e.g. text string, number, date) in a join, create a calculated item that includes the function or literal you want to use. You can then create a join and specify the item in the join.

How to view or edit joins

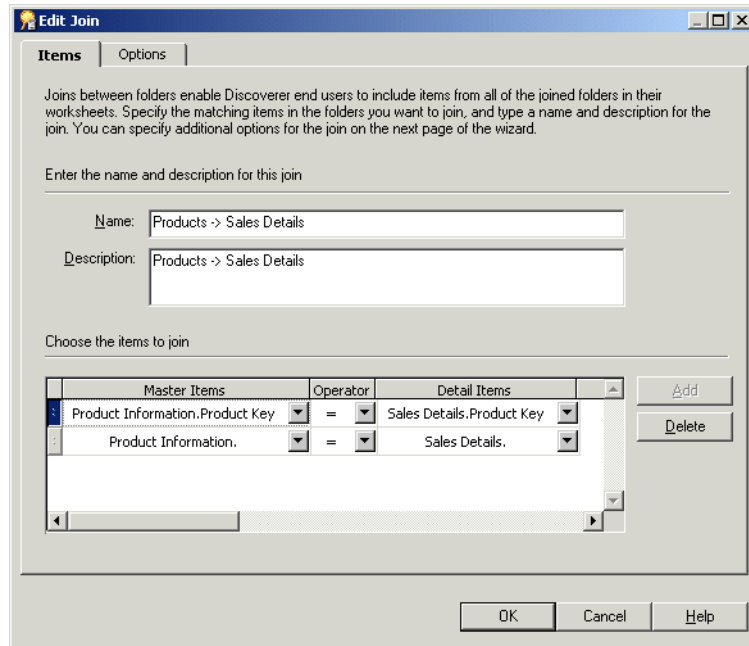
You can view or edit a join using either or both of the following methods:

- using the "[Edit Join dialog: Items tab](#)" and "[Edit Join dialog: Options tab](#)" to:
 - view and edit join items
 - add and remove join items
 - edit the join name and description
 - view and edit join options
- using the "[Join Properties dialog](#)" to:
 - view and edit join properties for one or more joins
 - view dependent objects for one or more joins

Both methods are described below.

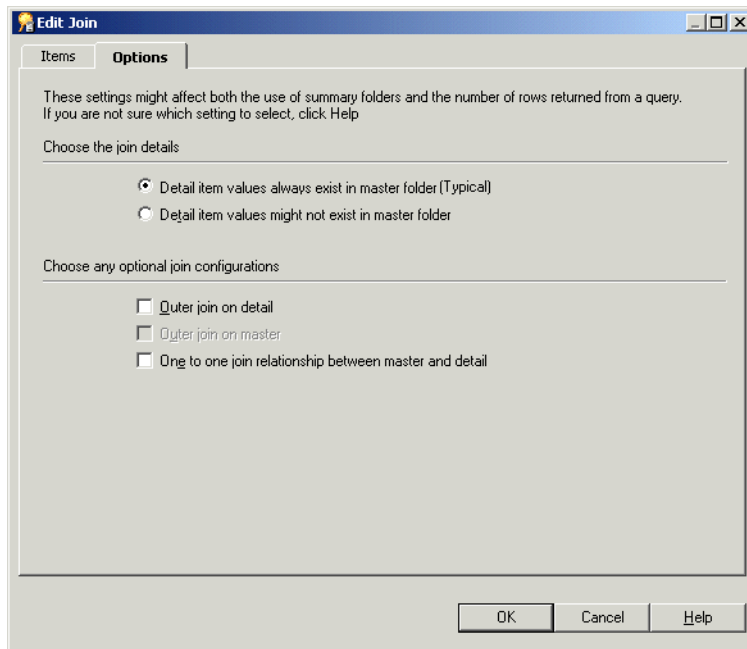
To edit a join using the Edit Join dialog:

1. Select a join on the "[Workarea: Data tab](#)" and choose Edit | Edit... to display the "[Edit Join dialog: Items tab](#)".

Figure 9–13 *Edit Join dialog: Items tab*

2. Edit the join name, description, and join conditions as required.
3. Display the ["Edit Join dialog: Options tab"](#).

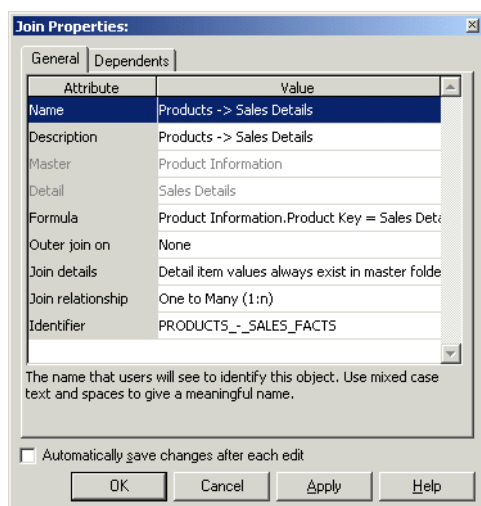
Figure 9–14 *Edit Join dialog: Options tab*



4. Edit the join options as required.
5. Click OK to save any changes you have made and close the dialog.

To view or edit join properties using the Join Properties dialog:

1. Select a join on the "[Workarea: Data tab](#)" and choose Edit | Properties to display the "[Join Properties dialog](#)".

Figure 9–15 Join Properties dialog: General tab

Hint: You can select more than one join at a time by holding down the Ctrl key and clicking another join. All properties that are common to each selected join are displayed. If the value of a property is not common to all of the selected joins, the Value field is blank.

2. Make changes as required.
3. Click OK to save any changes you have made and close the Join Properties dialog.

How to delete a join

You might delete a join when it is no longer required. For example, you might want to prevent end users creating a worksheet that contains items from two previously joined folders.

Note: When you delete a join, other EUL objects (e.g. complex folders) that use the join might also be affected. It is recommended that you export the EUL before you attempt to delete a join.

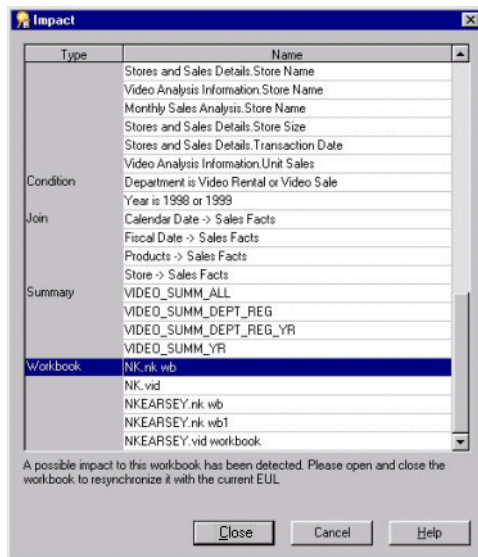
To delete a join:

1. Select a join on the "Workarea: Data tab" and choose Edit | Delete to display the "Confirm Delete dialog".

Hint: You can select more than one join at a time by holding down the Ctrl key and clicking another join.

2. (optional) To see the objects that might be affected by deleting this join:
 - a. Click Impact to display the "Impact dialog".

Figure 9–16 Impact dialog



The Impact dialog enables you to review the other EUL objects that might be affected when you delete a join.

Note: The Impact dialog does not show the impact on workbooks saved to the file system (i.e. in .dis files).

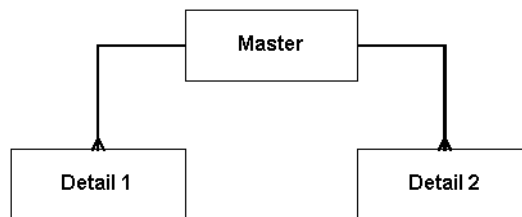
- b. (optional) Select a row in the Impact dialog to view text at the bottom of the list, indicating what affect the current action will have on the EUL object.
- c. Click Close to close the Impact dialog when you have finished reviewing the impact of deleting the join.

3. Click Yes if you still want to delete the selected join(s).

What are fan traps, and how does Discoverer handle them?

A fan trap is a group of joined database tables that might return unexpected results. The most common manifestation of a fan trap occurs when a master table is joined to two or more detail tables independently.

Figure 9–17 A simple fan trap schema



Although this construction is relationally correct, you are likely to return incorrect results if you use a straightforward SQL statement to aggregate data points.

However, if you use Discoverer to aggregate the data points, Discoverer will never return incorrect results. Every query that Discoverer generates is interrogated for potential fan traps. If a fan trap is detected, Discoverer can usually rewrite the query using inline views to ensure the aggregation is done at the correct level. Discoverer creates an inline view for each master-detail aggregation, and then combines the results of the outer query.

For an example of how Discoverer will return correct results when a straightforward SQL statement will return incorrect results, see ["Example of a fan trap"](#).

In some circumstances, Discoverer will detect a query that involves an unresolvable fan trap schema, as follows:

- if the detail folders use different keys from the master for the join
- if there is a direct join relationship between the detail folders (thereby creating an ambiguous circular relationship)
- if non-aggregated values are chosen from more than one of the detail folders
- if more than one detail folder has a separate join relationship to a different master folder

In the above circumstances, Discoverer disallows the query and displays an error message.

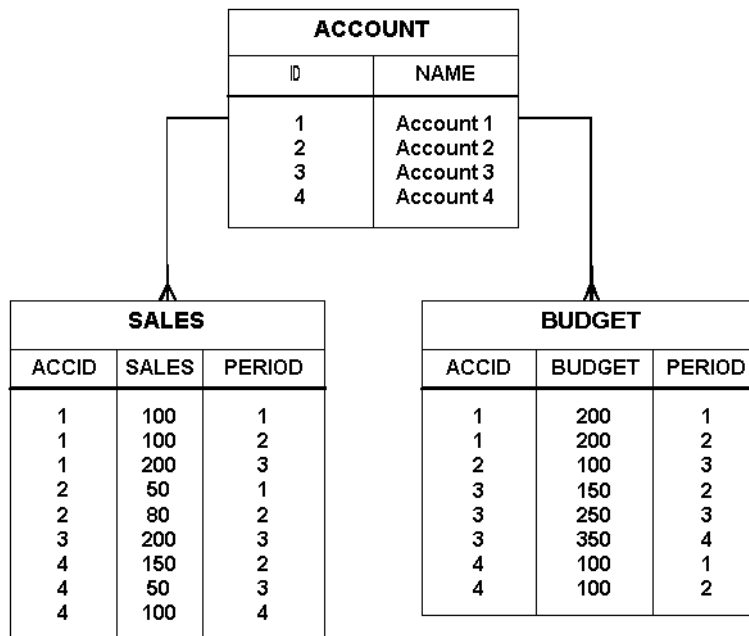
In addition, Discoverer controls which columns can be totalled. If a worksheet displays values of items from both the master folder and the detail folder, Discoverer will not total the values together. Instead, Discoverer will display a null to prevent incorrect or unexpected results.

For more information about enabling or disabling fan trap detection in Discoverer, see the *Oracle Application Server Discoverer Plus User's Guide*.

Example of a fan trap

Consider an example fan trap schema that includes a master folder (ACCOUNT) and two detail folders (SALES and BUDGET), as shown below:

Figure 9–18 Example of a fan trap schema



Every account can have several sales figures and several budget figures for each period.

Imagine that a Discoverer end user wants to answer the question, "What is the total sales and total budget by account?". The aggregates (SUM) from the two detail tables come from the same master table (ACCOUNT).

This relatively simple query will produce:

- correct results if you use Discoverer (provided fan trap detection is enabled)
- incorrect results if you use a straightforward SQL statement

Producing correct results using Discoverer

To answer the question, "What is the total sales and total budget by account?", Discoverer:

- selects the name of the account (from ACCOUNT.NAME)
- calculates the sum of SALES (from SALES.SALES)
- calculates the sum of BUDGET (from BUDGET.BUDGET)

Discoverer returns correct results, as shown below:

Figure 9–19 Correct results returned by Discoverer

Account	Sales	Budget
Account 1	400	400
Account 2	130	100
Account 3	200	750
Account 4	300	200

Discoverer interrogates the query, detects a fan trap, and rewrites the query to ensure the aggregation is done at the correct level. Discoverer rewrites the query using inline views, one for each master-detail aggregation, and then combines the results of the outer query.

The following example shows the SQL that Discoverer uses to return the correct results:

```
SELECT inACC as Name, SUM(inSalesSum) as SALES_SUM, ,SUM(inBudgetSum) as BUDGET_
_SUM,
FROM
  (SELECT masterID AS OutMasterIDSales, SUM(SalesDetailsSales) AS inSalesSum
FROM
```

```
(SELECT ID AS masterID, NAME AS masterName FROM ACCOUNT) INLineAccount,
(SELECT ID AS SalesDetailId, ACCID AS SalesDetailAccID, SALES AS
SalesDetailsSales FROM SALES )INLineSales
WHERE(masterID = SalesDetailAccID(+))
GROUP BY masterID) inner1,
(SELECT masterID AS OutMasterIDBudget, SUM(BudgetDetailBudget) AS inBudgetSum,
masterName AS inACC
FROM
(SELECT ID AS masterID, NAME AS masterName FROM ACCOUNT) INLineAccount,
(SELECT ID AS BudgetDetailId, ACCID AS BudgetDetailAccID, BUDGET AS
BudgetDetailsSales FROM BUDGET )INLineBudget
WHERE(masterID = BudgetDetailAccID(+))
GROUP BY masterName, masterID ) inner2
WHERE ((OutMasterIDBudget = OutMasterIDSales))
GROUP BY inACC
```

The result is correct because each sale and each budget is summed individually (one for each master-detail aggregation) and is then combined with a join based on the master key(s).

Producing incorrect results using a straightforward SQL statement

To answer the question, "What is the total sales and total budget by account?", you might consider using a straightforward SQL statement such as the following:

```
SELECT Account.Name, SUM(sales), SUM(budget)
FROM
Account, Sales, Budget
Where
Account.id=Sales.accid
AND
Account.id=Budget.accid
GROUP BY
Account.Name
```

This straightforward SQL statement returns incorrect results, as shown below:

Figure 9–20 Incorrect results returned by a straightforward SQL statement

Account	Sales	Budget
Account 1	800	1200
Account 2	130	200
Account 3	600	750
Account 4	600	600

Although the results are relationally correct, they are obviously wrong. For example, the results indicate that the total sales figure for Account 1 is 800 but you can see from the SALES table that the total sales figure for Account 1 is 400 (i.e. 100+100+200).

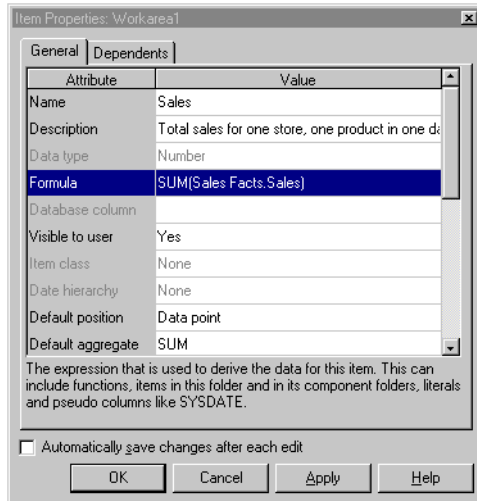
The incorrect results are based on a single query in which the tables are first joined together in a temporary table, and then the aggregation is performed. However, this approach causes the aggregates to be summed (incorrectly) multiple times.

What to do if you set up a fan trap inside a complex folder

Discoverer warns about fan trap join configurations in complex folders by displaying a message indicating that an invalid join configuration exists. To make sure that Discoverer returns correct results for complex folders, you can edit the Formula property of the detail item and explicitly specify the aggregate formula.

For example, you might set the Formula property of a Sales item in a complex folder, from Sales Fact.Sales to SUM(Sales Facts.Sales), as shown below:

Figure 9–21 Example of an aggregate formula specified for an item in a complex folder



What to do if you have a data type mismatch in a join

Discoverer does not allow joins between items of different data types (e.g. varchar, numeric, or date). However, if you have upgraded from a previous version of Discoverer, an existing join might already exist between mismatched data types. If a join exists between two items with mismatched data types, Discoverer runs the query but displays an error message and does not complete the query. Discoverer also displays an error message if you try to edit a join that contains items that have mismatched data types.

You can create a join between two items that have mismatched data types by following the steps below:

- create a new item based on the first mismatched item and use conversion functions (e.g. `to_char()`, `to_date()`, `to_number()`) to make the new item's data type compatible with the second item
- create a join between the new item and the second item

For more information, see ["Example of how to create a join between two items that have mismatched data types"](#).

Example of how to create a join between two items that have mismatched data types

In this example, you want to create a join between the Calendar Date folder and the Store and Sales Detail folder, using:

- the Day of Week item from the Calendar Date folder
- the Transaction Date item from the Store and Sales Detail folder

These two items have mismatched data types, as follows:

- the Day of Week item's data type is varchar
- the Transaction Date item's data type is date

To create a join between the two folders using these two items, you must perform the following steps:

- ["Step 1: Create a new item that converts the Day of Week item from a varchar to a date data type"](#)
- ["Step 2: Create a join using the new item"](#)

Step 1: Create a new item that converts the Day of Week item from a varchar to a date data type

The first step is to create a new item that converts the Day of Week item from varchar to a date data type as follows:

1. Select the Calendar Date folder from the Video Store Tutorial business area.
2. Choose Insert | Item to display the ["New Item dialog"](#).
3. Type `New Day of Week` in the **Item Name** field.
4. Select the **Functions** radio button to display the function folders.
5. Click the + symbol next to the **Conversion** folder to display the conversion functions.
6. Select the TO_DATE function and click PASTE>> to paste the TO_DATE function into the **Calculation** field for the new item.
7. Replace the text in the **Calculation** field between the brackets of the TO_DATE function with the following text:

```
Day of Week,Day
```

The **Calculation** field now displays the following text:

```
TO_DATE (Day of Week,Day)
```

8. Click OK to create the new item.

You have now created a new item that is based on the Day of Week (varchar) item and that has been converted to a date data type.

Step 2: Create a join using the new item

Having created a new calculated item of the correct data type, the next step is to join the new item to the Transaction Date item from the Store and Sales Details folder, as follows:

1. Select the New Day of Week item from the Calendar Date folder.
2. Choose Insert | Join to display the "Join Wizard: Step 1 dialog".
3. Click the Detail Items drop down list to display the "New Join dialog".

The New Join dialog enables you to select the detail folder and item for the new join.

4. Click the + symbol next to the Store and Sales Details folder to expand the folder's items.
5. Select the Transaction Date item and click OK to close the New Join dialog.
6. Click Next to display the "Join Wizard: Step 2 dialog".
7. Click Finish to accept the default join options and close the Join Wizard: Step 2 dialog.

Discoverer is able to join the Calendar Date folder with the Store and Sales Details folder using the New Day of Week item and the Transaction Date item because both items have the same data type.

Creating and maintaining calculated items

Creating and maintaining calculated items

This chapter explains how to create and maintain calculated items using Discoverer Administrator, and contains the following topics:

- "What are calculated items?"
- "What are derived items?"
- "What are aggregate calculated items?"
- "What restrictions apply to aggregate calculated items?"
- "What are the differences in behaviour between analytic functions and aggregate calculated items?"
- "What are aggregate derived items?"
- "Example of an aggregate derived item"
- "How to create calculated items"
- "How to edit calculated item properties"
- "How to edit calculated items"
- "How to delete calculated items"
- "How to create a calculated item that enables end users to drill out from one worksheet to display another worksheet in Discoverer Viewer"
- "Why do you need PL/SQL functions?"
- "What are custom PL/SQL functions?"
- "About registering custom PL/SQL functions"

- ["How to register custom PL/SQL functions automatically"](#)
- ["How to register custom PL/SQL functions manually"](#)

What are calculated items?

Calculated items are items that use a formula to derive data for the item.

Calculated items enable Discoverer end users to apply business calculations to the data. For example, typical business calculations might include:

- profit margins
- average revenues per month
- expected sales
- percent of profit by product type

Calculated items (like other items in a folder) can be used in conditions, summary folders, lists of values, joins, and other calculated items.

As the Discoverer manager, you can create calculated items and make them available for inclusion in workbooks.

Creating calculated items provides the following benefits:

- Discoverer end users can include a complicated calculation in their worksheets simply by selecting a calculated item
- you can add new items to a folder that do not exist as columns in the underlying database tables

You create calculated items using expressions that can contain:

- existing items
- operators
- literals
- functions

There are three types of calculated items:

- derived items (for more information, see ["What are derived items?"](#))
- aggregate calculated items (for more information, see ["What are aggregate calculated items?"](#))

- aggregate derived items (for more information, see "[What are aggregate derived items?](#)")

You can obtain more information about calculated items in Discoverer from the following sources:

- for worked examples of calculated items, see the *Oracle Application Server Discoverer Plus User's Guide*
- for information on function syntax, see the latest *Oracle SQL Reference* documentation

Notes

- You might want to create a calculation to concatenate two (or more) items. To concatenate items, insert `||CHR(10)||` between items. For example, to create a new worksheet column containing the Calendar Year item and the Department item, create a calculation as follows:

Calendar Year || CHR(10) || Department

Worksheets containing this item will display Calendar Year and Department in a single column. For example:

2002 Sales Department

- You can create a calculated item (containing an internet address) and use the calculated item in a Discoverer Plus worksheet to enable end users to launch a pre-defined Discoverer Viewer worksheet in a Web browser (for more information, see "[How to create a calculated item that enables end users to drill out from one worksheet to display another worksheet in Discoverer Viewer](#)").

What are derived items?

Derived items are expressions used in calculated items that behave like any other item in a folder. Derived items can be axis items or data points and can be used anywhere that you would use an ordinary item. The value of a derived item remains the same regardless of which other items are included in a workbook.

The following are examples of derived items:

- `Sal*12+NVL(Comm,0)` - returns annual salary plus commission
- `Initcap(ENAME)` - capitalizes the first letter of ENAME
- `1` - returns the value 1

- `Sysdate-7` - returns today's date minus seven days

What are aggregate calculated items?

Aggregate calculated items are derived items (for more information, see "[What are derived items?](#)"), to which the GROUP function is applied (e.g. SUM, COUNT, MAX, MIN, AVG, DETAIL). The value of an aggregated calculated item depends on which other items are included in a worksheet.

The following are examples of aggregate calculated items:

- `SUM(Sal)*12` - returns the sum of the annual salary
- `SUM(Comm)/SUM(Sal)` - returns the sum of commission divided by the sum of the salary
- `AVG(Monthly Sales)` - returns the average monthly sales

How the axis items are grouped together affects the number of rows that are aggregated. This is particularly important in the case of calculations that are ratios of two aggregates.

For example, to calculate a margin, you would use the calculation `SUM(Profit)/SUM(Sales)` rather than `Profit/Sales`. Used in a query, the latter would result in `SUM(Profit/Sales)`, which produces a different result from `SUM(Profit)/SUM(Sales)`. The example uses the SUM aggregate, but the same can be applied for any of the other aggregates (e.g. SUM, COUNT, MAX, MIN, AVG, DETAIL).

Note: If you want to compute the sum of a ratio of two data points, always sum the data points before computing the ratio.

What restrictions apply to aggregate calculated items?

When creating aggregate calculated items, note that a number of restrictions apply. Aggregate calculated items:

- must have their **Default Position** property set to data point
- must have their **Default Aggregate** property set to detail
- must reference items in the current folder only
- cannot be used in a join

- cannot be used in a mandatory condition
- cannot be used in a hierarchy
- cannot have an item class
- cannot be dragged into a complex folder
- cannot have further aggregation functions applied to them in Discoverer Plus

Aggregate calculated items do not influence the number of rows of data referenced by the folder they are in. They only influence the generated SQL when selected in worksheets.

What are the differences in behaviour between analytic functions and aggregate calculated items?

Analytic functions are advanced mathematical and statistical calculations that you can use to analyse business intelligence data. For example, to answer questions such as:

- what are my best selling products?
- how do current sales compare with last year's sales?
- what is the average sales transaction amount in the region with the largest number of sales transactions per year?

Analytic functions behave differently from aggregate calculated items as follows:

- analytic functions are aggregated in the database
- because analytic functions are aggregated in the database, and not the memory cache, they have a performance overhead
- analytic functions are only available in Oracle 8.1.7 (or later) Enterprise Edition databases

For more information about:

- the restrictions that apply to both analytic functions and aggregate calculated items, see ["What restrictions apply to aggregate calculated items?"](#)
- analytic functions, see the *Oracle Application Server Discoverer Plus User's Guide*.

What are aggregate derived items?

Aggregate derived items are aggregate calculated items in a complex folder that aggregate another aggregate calculated item (in the same complex folder). In other words, an aggregate derived item is simply an aggregate calculated item nested inside another aggregate calculated item.

Aggregate derived items enable you to apply an aggregation (e.g. AVG, SUM, COUNT) to the current level of aggregation to derive additional information.

Aggregate derived items behave in all respects like ordinary derived items. For more information, see:

- ["What are derived items?"](#)
- ["Example of an aggregate derived item"](#)

Example of an aggregate derived item

This example explains how you can use an aggregate derived item to display the average monthly sales per store over one year, for a video stores chain. The aggregate derived item in this example uses an aggregate calculated item created in the same folder. For more information about aggregate calculated items, see ["What are aggregate calculated items?"](#).

This example uses two complex folders, Video Analysis and Monthly Sales Analysis, that are created when you complete the Discoverer Administrator Tutorial exercises (for more information, see the *Discoverer Administrator Tutorial*).

An aggregate derived item is created in the complex folder Monthly Sales Analysis. The Monthly Sales Analysis complex folder is built by dragging the following items from the Video Analysis complex folder (for more information, see the *Discoverer Administrator Tutorial*):

- Department
- Region
- City
- Store Name
- Year
- Quarter
- Month

The complex folder Monthly Sales Analysis references a row of data for every store, for every month.

An aggregate calculated item (Monthly Sales Per Store) is created in the Monthly Sales Analysis complex folder using the following formula:

SUM(Video Analysis.Sales)

This item shows the total sales for a given store in a given month.

Figure 10–1 Result of query using the aggregate calculated item SUM(Video Analysis.Sales)

Month	Monthly Sales per Store SUM	Store Name
Jan	£26,091.99	Store No. 1
Feb	£20,483.19	Store No. 1
Mar	£25,258.85	Store No. 1
Apr	£32,459.99	Store No. 1
May	£30,766.77	Store No. 1
Jun	£22,529.44	Store No. 1
Jul	£13,735.11	Store No. 1
Aug	£14,027.78	Store No. 1
Sep	£12,931.60	Store No. 1
Oct	£11,810.50	Store No. 1
Nov	£10,011.17	Store No. 1
Dec	£10,414.49	Store No. 1
Jan	£2,914.94	Store No. 10

An aggregate derived calculated item (called Average Monthly Sales per Store), is created in the Monthly Sales Analysis complex folder using the following formula:

AVG(Monthly Sales Per Store)

This item shows the average total sales for a given store in a given month.

Figure 10–2 Result of query using the aggregate derived calculated item AVG(Monthly Sales Per Store)

Month	Average Monthly Sales per Store	Store Name
Jan	£2,174.33	Store No. 1
Feb	£1,706.93	Store No. 1
Mar	£2,104.90	Store No. 1
Apr	£2,705.00	Store No. 1
May	£2,563.90	Store No. 1
Jun	£1,877.45	Store No. 1
Jul	£1,144.59	Store No. 1
Aug	£2,337.96	Store No. 1
Sep	£2,155.27	Store No. 1
Oct	£1,181.05	Store No. 1
Nov	£1,668.53	Store No. 1
Dec	£1,735.75	Store No. 1
Jan	£264.99	Store No. 10

Notes

- The Average Monthly Sales per Store item shows the average monthly sales and can be analyzed over region, quarter, year, which is useful to compare trends. This form of nested aggregate is only possible by creating the aggregate item in a new folder. The aggregate item must be created in a new folder because the new folder now represents monthly sales, not the individual sales that were in the original complex folder.
- Aggregate derived items cause the SQL created by Discoverer to contain a GROUP BY clause that forces Discoverer end user queries to return one row for each combination of the non-aggregated items, regardless of whether the calculation is used in the query. This reduces the number of rows returned by the folder, because the rows are aggregated at the level of the other items.

How to create calculated items

You can create calculated items, derived items, aggregate calculated items and aggregate derived items using this task.

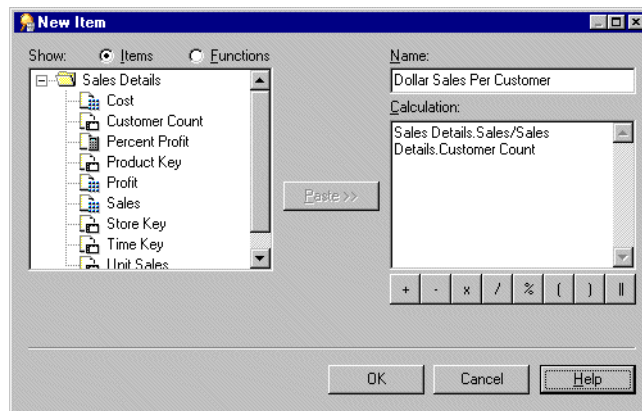
To create a new calculated item:

1. Select the folder that you want to contain the new calculated item on the "Workarea: Data tab".
2. Choose Insert | Item... to display the "New Item dialog".

This dialog enables you to create a new calculated item and add it to the selected folder.

Note: If you did not select a folder, Discoverer Administrator displays the "New Item dialog" where you can select a folder to contain your new calculation (you can select any folder from any open business area).

Figure 10-3 New Item dialog



3. Specify a name for the new calculated item.
4. Enter the calculation formula in the **Calculation** field.

If you are familiar with calculation syntax, you type the formula in the **Calculation** field.

Note: If you type a formula in the **Calculation** field, you must prefix the formula with an equals sign (i.e. =).

If you prefer, you can build the calculation in stages using any of the following methods:

- To add an item from the business area to the calculation, click the **Items** radio button and select an item from the **Show** list, then click Paste to copy the item into the **Calculation** field.
- To add a function to the calculation, click the **Functions** radio button and select a function from the **Show** list, then click Paste to copy the function into the **Calculation** field.
- To include a mathematical operator in the calculation, click the appropriate operator button below the **Calculation** field.

Hint: Before pasting items in the **Calculation** field, position the cursor in the **Calculation** field to where you want to insert the item.

Note: Calculations follow the standard Oracle calculation syntax. For a full description of this syntax, see the *Oracle SQL Language Reference Manual*.

Note: Registered custom PL/SQL functions are displayed in the **Database** group. For more information, see "[What are custom PL/SQL functions?](#)"

5. Click OK when you have finished specifying details in the **Calculation** field.

If there are no errors in the **Calculation** field, the new item is created. If there are errors in the **Calculation** field, Discoverer Administrator displays the first error and returns you to the New Item dialog so that you can correct the details.

You can now use the new calculated item to create joins or conditions, even new calculations. You can also include the new calculated item in other calculated items.

How to edit calculated item properties

To edit calculated item properties see [Chapter 8, "How to edit item properties"](#) for more information.

How to edit calculated items

To edit an existing calculation:

1. Select the calculated item on the "[Workarea: Data tab](#)" and choose Edit | Edit... to display the "[Edit Calculation dialog](#)".
2. Change the calculation as required.

For example:

- change the name of the calculation
 - add or remove items, functions, or operators from the calculation text
3. Click OK to save the changes you have made and close the dialog.

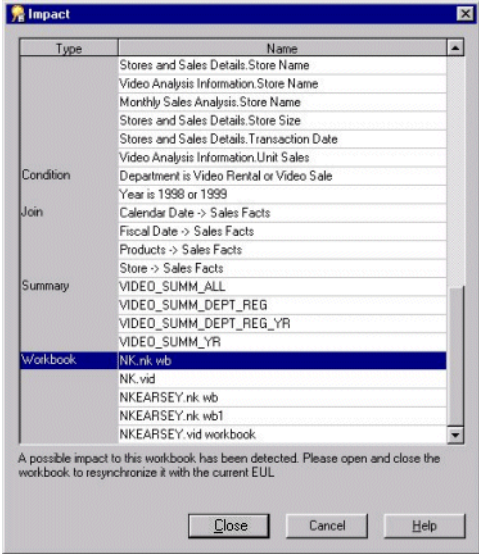
How to delete calculated items

You can delete one or more calculated items. Note that when you delete a calculated item, other EUL objects might be affected if they use the calculated item you want to delete. The Impact dialog enables you to review the other objects that might be affected when you delete a calculated item.

To delete a calculated item:

- 1. On the "Workarea: Data tab" select the calculated item that you want to delete. You can select more than one item at a time by holding down the Ctrl key and clicking another item.
- 2. Choose Edit | Delete to display the "Confirm Delete dialog".
- 3. (optional) To see the objects that might be affected by deleting this item:
 - a. Click Impact to display the "Impact dialog".

Figure 10-4 The Impact dialog



The Impact dialog enables you to review the other EUL objects that might be affected when you delete an item.

Note: The Impact dialog does not show the impact on workbooks saved to the file system (i.e. in .dis files).

- b. (optional) Select a row to view text at the bottom of the list, indicating what affect the current action will have on the EUL object.
- c. When you have finished reviewing the impact of deleting the item, click Close to close the Impact dialog.

4. Click Yes if you still want to delete the selected items(s).

How to create a calculated item that enables end users to drill out from one worksheet to display another worksheet in Discoverer Viewer

You might want to create a worksheet that end users can drill out from, to display additional or related information in another worksheet in Discoverer Viewer.

You can create a calculated item in Discoverer Administrator that includes an internet address (a URL), and include the same item in a worksheet. End users can click the item to display a pre-defined Discoverer Viewer worksheet.

To create a calculated item that enables end users to drill out from one worksheet (the source) to display another worksheet (the target) in Discoverer Viewer:

1. Create the target worksheet in Discoverer Plus or Discoverer Desktop and save it to the database.

This is the pre-defined worksheet that end users will drill out to, from the source worksheet.

For more information about creating worksheets, see the *Oracle Application Server Discoverer Plus User's Guide*.

Note: If you want the target worksheet to display context-sensitive information (i.e. information related to the source worksheet row or column that end users drill out from), the target worksheet must use a method of filtering the data (e.g. parameters or page items).

2. Use Discoverer Viewer to display the target worksheet that you created in Step 1.
3. Copy the URL of the target worksheet onto the clipboard.

You will paste the URL of the target worksheet into a new calculated item in Discoverer Administrator, and then modify the formula of the calculated item.

4. Display the "New Item dialog" in Discoverer Administrator (see, "[How to create calculated items](#)").

You will use the new calculated item in the source worksheet to drill out to the target worksheet in Discoverer Viewer.

5. Paste the URL (that you copied onto the clipboard) into the **Calculation** field of the "New Item dialog".

You must now edit the URL in the new calculated item and replace each parameter value with its corresponding EUL item name. The EUL items supply the dynamic value that are used by the parameters in the target worksheet.

6. In the **Calculation** field of the "New Item dialog", enter a single quotation mark (i.e. ') at the beginning and at the end of the URL.

For example:

```
'http://mymachine.com/discoverer/viewer?&cn=cf_
a208&pg=1&wbk=PARAMETERS&wsk=26&qp_myRegion=CENTRAL'
```

Using single quotation marks enables Discoverer to treat the text of an URL correctly.

7. Edit the formula in the **Calculation** field to replace each parameter value in the URL with its corresponding EUL item name.

For example, if the target worksheet uses a parameter named myRegion (that represents the EUL item Region), the URL that you paste into the **Calculation** field might appear as follows:

```
'http://mymachine.com/discoverer/viewer?&cn=cf_
a208&pg=1&wbk=PARAMETERS&wsk=26&qp_myRegion=CENTRAL'
```

To replace part of the URL with a value determined from an EUL item, use the syntax '|<ItemName>|'. For example, in the URL above you might replace the value CENTRAL as follows:

```
'http://mymachine.com/discoverer/viewer?&cn=cf_
a208&pg=1&wbk=PARAMETERS&wsk=26&qp_myRegion='||Region|''
```

Where Region is the corresponding EUL item that dynamically supplies the value required by the myRegion parameter in the target worksheet.

Note: You use single quotation marks and the || operator to correctly build the resulting URL.

8. Enter a suitable name for the new calculated item in the **Name** field.
For example, you could name the new calculated item Drill_to_myRegion.
9. Click OK to close the dialog and save your changes.
10. In the Workarea: Data tab, highlight the calculated item you just created and choose Edit | Properties.

Discoverer displays the "Item Properties dialog" for the calculated item you just created.

How to create a calculated item that enables end users to drill out from one worksheet to display another worksheet in Dis-

11. Click the **Content Type** attribute and choose FILE from the drop down list.

The **Content Type** attribute tells Discoverer to launch another application. In this case, Discoverer Plus, Discoverer Desktop or Discoverer Viewer will launch a Web browser to display the target worksheet in Discoverer Viewer.

12. Click OK to close the dialog and apply the changes you have made.
13. Start a new Discoverer Plus session (or reconnect to Discoverer Desktop).
14. Create a worksheet (the source worksheet) in Discoverer Plus or Desktop and include the Drill_to_myRegion calculated item (that you just created in Discoverer Administrator) in the worksheet.

For more information about creating worksheets, see the *Oracle Application Server Discoverer Plus User's Guide*.

When an end user displays this source worksheet in Discoverer Plus, Discoverer Desktop or Discoverer Viewer, they can click the Drill_to_myRegion calculated item (that you just created) to display the target worksheet in Discoverer Viewer. The context-sensitive value for the EUL item Region is dynamically passed to the target worksheet using the myRegion parameter to display the correct results data.

The example URL used in this task can be broken down into the following components:

Section of internet address	What the section of the internet address represents
http://mymachine.com/discoverer/viewer?	the internet address (URL) of Discoverer Viewer
&cn=cf_a208	the connection string used to connect to the database
&wbk=PARAMETERS	the workbook identifier
&wsk=26	the worksheet identifier
&qp_myRegion	the parameter myRegion (created in Discoverer Plus or Discoverer Desktop)
=CENTRAL	the value of the target worksheet parameter myRegion (i.e. the CENTRAL region)

Why do you need PL/SQL functions?

PL/SQL functions are one of Oracle's procedural extensions to SQL. PL/SQL functions offer access through PL/SQL references in the SQL, to PL/SQL functions that run in the Oracle server. PL/SQL functions enable you to compute values in the database. For more information about PL/SQL functions, see the *PL/SQL User's Guide and Reference*.

What are custom PL/SQL functions?

Custom PL/SQL functions are PL/SQL functions created by the Discoverer manager that are designed to meet additional Discoverer end user requirements (e.g. to provide a complicated calculation). Custom PL/SQL functions supplement the PL/SQL functions provided by Oracle and are available to all database processes.

You create custom PL/SQL functions using SQL*Plus, or a procedural editor. You do not create custom PL/SQL functions directly in Discoverer Administrator. For more information see the *SQL*Plus User's Guide and Reference*.

Note: In Discoverer Plus, folders containing derived items (for more information, see "[What are derived items?](#)") that use PL/SQL functions will be visible only to users who have EXECUTE database privileges on those functions.

About registering custom PL/SQL functions

To access custom PL/SQL functions using Discoverer, you must register the functions in the EUL. When you have registered a custom PL/SQL function, it appears in the list of database functions in the "[Edit Calculation dialog](#)" and can be used in the same way as the standard Oracle functions.

You can register custom PL/SQL functions in two ways:

- Import automatically, by importing the functions (recommended)

We recommend you register PL/SQL functions by importing automatically (especially if you have many functions to register), because it is easy to make mistakes when manually entering information about functions. When you import functions, all of the information about each function (e.g. names, database links, return types, lists of arguments) is imported. Importing ensures correct information about the function, because the information does not have to be manually entered on a function-by-function basis.
- Manually

Manual registration requires that you register each function individually by supplying all of the information about the function.

How to register custom PL/SQL functions automatically

To register PL/SQL functions automatically you must import them in the following way:

1. Choose Tools | Register PL/SQL Functions to display the "PL/SQL Functions dialog: Functions tab".
2. Click Import to display the "Import PL/SQL Functions dialog".

This dialog enables you to select the PL/SQL functions that you want to import.

3. Select the functions that you want to import

You can select more than one function at a time by holding down the Ctrl key and clicking another function.

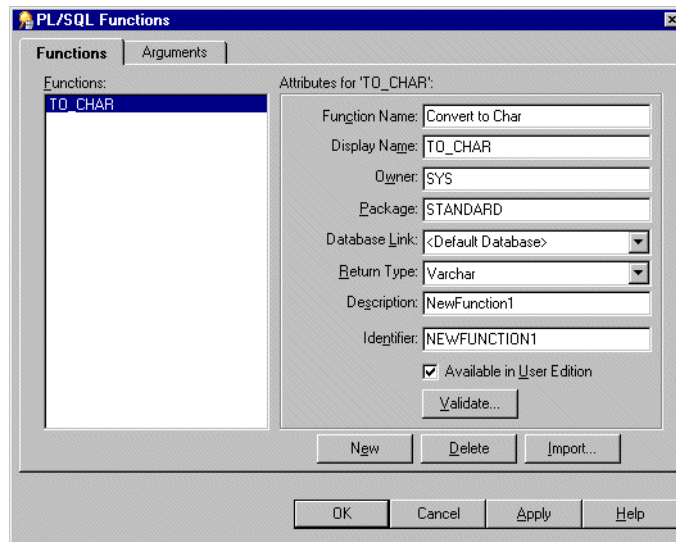
4. Click OK.

Information about the selected functions is imported automatically. In other words, you do not have to manually enter information or validate the information.

How to register custom PL/SQL functions manually

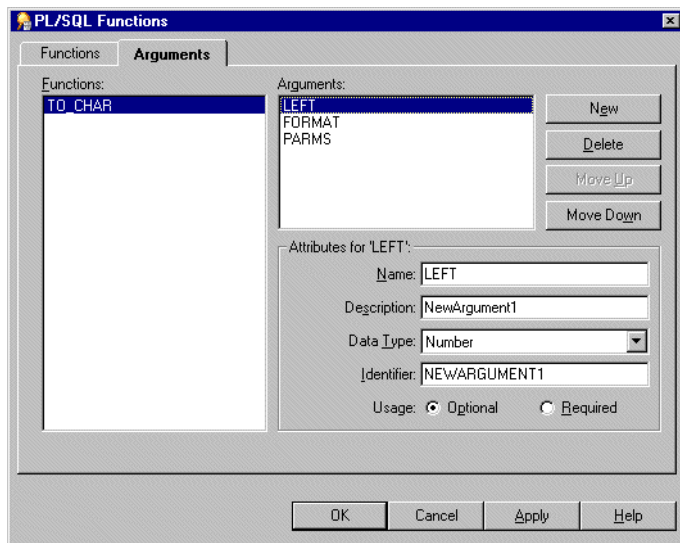
To manually register a PL/SQL function for use in Discoverer:

1. Choose Tools | Register PL/SQL Functions to display the "PL/SQL Functions dialog: Functions tab".

Figure 10–5 PL/SQL Functions dialog: Functions tab

2. Click New and specify the function attributes.
3. Click Validate to check the validity and accuracy of the information you have entered.
4. If the function is invalid, correct the attributes and click Validate again.
5. (optional) If the function accepts arguments:
 - a. Display the "PL/SQL Functions dialog: Arguments tab".
 - b. On the Arguments tab, click New and specify the argument attributes.

Figure 10–6 PL/SQL Functions dialog: Arguments tab



6. Click OK when you have finished defining the function.

The custom PL/SQL function is now registered for use in Discoverer.

Creating and maintaining conditions

Creating and maintaining conditions

This chapter explains how to implement conditions using Discoverer Administrator, and contains the following topics:

- "What are conditions?"
- "What are the different types of condition?"
- "How to create simple conditions"
- "How to create advanced conditions"
- "How to edit conditions"
- "How to edit condition properties"
- "How to delete conditions"
- "Example conditions"
- "About outer joins and the DisableAutoOuterJoinsOnFilters registry setting"
- "How to create row level security using a mandatory condition"
- "How to enable summary folders if a source folder includes a mandatory condition (e.g. with row level security)"

What are conditions?

Conditions filter worksheet data, enabling Discoverer end users to analyze only the data they are interested in. For example, you might want to give Discoverer end users access to data for 2001, but not 1999 or 2000.

You also use conditions to restrict access to sensitive data. By imposing mandatory conditions, only non-sensitive data is made available to Discoverer users (see "[What are the different types of condition?](#)"). You can make sure that Discoverer end users only see the data that you want them to see.

As a Discoverer Administrator, you can anticipate commonly used conditions and make them available to Discoverer end users so they can apply them in worksheets. This enables Discoverer end users to work efficiently.

Notes

- Discoverer Plus users can also create their own conditions.

About condition categories

Conditions are categorized as follows:

- Simple conditions - these contain a single condition statement. For example, 'display data where year = 2001'.
- Advanced conditions - these contain two or more condition statements. For example:
display data where year = 2001 AND quarter = 1 AND region = south.
- Nested conditions - these contain condition statements that are defined within other condition statements. For example:
display data where year = 2001 AND (region = north OR region = south)
here, the OR clause is nested within the AND clause.
- Advanced nested conditions - these contain two or more condition statements and also include condition statements defined within the advanced condition. For example:
display data where year = 2001 AND quarter = 1 AND region = south' AND (region = north OR region = south)
here as in the nested example, the OR clause is nested within the AND clause)

As an alternative to creating advanced conditions, you might want to create two or more single conditions and apply them at the same time. This enables Discoverer users to be more selective about which parts of the condition they use.

Note: There can be subtle differences between applying advanced conditions and equivalent multiple single conditions (for more information, see *Oracle Application Server Discoverer Plus User's Guide*).

How do conditions work in Discoverer?

Conditions work in Discoverer by matching condition statements against worksheet data so that:

- data matching your condition statements is displayed in workbooks
- data not matching your condition statements is not displayed in workbooks

For example, you might want to limit the display of data to the last two years of sales. Or, you might want to see the data for only two types of sales items. Each of these tasks involves filtering the data to find information that meets the conditions.

What are the different types of condition?

There are two types of condition:

- mandatory condition
- optional condition

You create mandatory and optional conditions in the same way. However, note the following:

- mandatory conditions are always applied to a worksheet that contains one or more items from the folder that contains the condition. Discoverer Plus users are not notified of mandatory conditions and can not turn them off.

For example, you might want to assign a mandatory condition to sales data for regional sales managers, limiting their view of sales to the region for which each manager is responsible.

- optional conditions can be turned on or off as required by Discoverer Plus users. They can also view a condition's formula, but they are not allowed to edit the formula.

For example, a Vice President responsible for all sales regions should be able to see all of the sales data, and also be able to apply conditions to see sales data relating to specific sales regions.

The table below shows further differences between mandatory and optional conditions:

Mandatory condition	Optional condition
Always applied to the results of a folder.	Only applied to the results of a folder if selected in Discoverer Plus.

Mandatory condition	Optional condition
Used by the Discoverer manager to permanently restrict the rows returned by a folder.	Provided by the Discoverer manager as a shortcut to help users build conditions more easily.
Invisible in Discoverer Plus.	Visible (but not editable) in Discoverer Plus.
When created in a complex folder, can reference items in the source folders.	When created in a complex folder, can only reference items in the complex folder.
Affects the result set (in the database) of the folder definition in the EUL.	Does not affect the result set (in the database) of the folder definition in the EUL (because an optional condition is only used when applied in Discoverer Plus).
<p>When added, changed, or deleted, cause any summaries based on the folder to become invalid, because their result set no longer matches that of the folder.</p> <p>These summaries are set to "Refresh required" and must be refreshed to be made available again.</p>	When added, changed, or deleted have no affect on summaries based on the folder.

Notes

- If you create a complex folder from items in a folder that contains a mandatory condition, the results in the complex folder are restricted by the mandatory condition on the original folder. You can see any mandatory conditions that impact a complex folder using the Components tab of the complex folder's Properties dialog.

How to create simple conditions

You create a simple condition when you want Discoverer end users to filter worksheets in a new way. You add the condition to a folder so that Discoverer end users can apply the condition when using workbooks based on the folder.

For example, you might want to create an optional condition that filters data to display results for the current year, because Discoverer end users might only be interested in data for that year. Or, you might want to restrict access to sensitive data by imposing a mandatory condition on a particular area of data (see ["What are the different types of condition?"](#)).

To create a single condition:

1. On the ["Workarea: Data tab"](#), do one of the following:

- select the folder in which you want to create the condition
 - select the item that you want to form part of your condition
2. Choose Insert | Condition to display the "New Condition dialog".

Figure 11–1 New Condition dialog

The screenshot shows the 'New Condition' dialog box. The 'Name' field contains 'Profit' and the 'Generate name automatically' checkbox is checked. The 'Description' field is empty. The 'Location' is set to 'Sales Details' and the 'Type' is set to 'Optional'. The 'Formula' section shows a dropdown menu with 'Profit' selected, followed by an equals sign and a 'Value(s)' dropdown. The 'Match case' checkbox is checked. The dialog has 'OK', 'Cancel', and 'Help' buttons at the bottom.

Note: If you choose Insert | Condition without first selecting a folder or item, Discoverer prompts you to choose a folder or item before displaying the dialog.

3. (optional) Enter a name for the condition in the **Name** field.
- Note:** By default, Discoverer Administrator creates a default condition name for the condition, based on the condition itself. However, you can specify your own name for the condition.
4. (optional) To specify your own name for the condition:
- a. Clear the **Generate name automatically** check box.
 - b. Enter a name for the condition in the **Name** field.
5. (optional) Enter a brief description of the condition in the **Description** field.
- The text entered here is displayed when the condition is edited in Discoverer Administrator or when the condition is highlighted by end users.
6. Specify the type of condition from the **Type** drop down list as follows:

- select **Optional** if you want Discoverer end users to be able to turn the condition on or off
 - select **Mandatory** if you want the condition to always apply
7. Define the condition statement in the Formula area as follows:
- a. Choose what item or calculation you want to filter the data on using the **Item** drop down list. For example, choose Year if you want to display data for a particular year. To create a calculation that you want to filter data on click **Create Calculation...** (for further information, see [Chapter 10, "Creating and maintaining calculated items"](#)).
 - b. Choose how to match data against the item using the **Condition** drop down list. For example, choose the greater than (>) symbol to filter data where the item value is greater than a particular number.
 - c. Define what data or items you want to match against using the **Values** field. For example, enter 2002 to look only at data for the year 2002. If you created a list of values for the item, these items appear in the drop down list (for more information about lists of values, see [Chapter 8, "Maintaining items and item classes"](#)). To create a calculation that you want to filter data on click **Create Calculation....** To choose an item that you want to match against click **Select Item...** and select an item from the list.
8. Specify whether to match the case of text data using the **Match Case** check box as follows:
- select the **Match Case** check box to make the condition case sensitive
 - clear the **Match Case** check box to make the condition case insensitive
- For example, when the **Match Case** check box is selected, the match value 'New York' would not return data for 'new york'.
9. Click OK do save the details and close the New Condition dialog.

The new condition is displayed on the "[Workarea: Data tab](#)". When Discoverer users access this business area, they will see this condition item in a folder. Note that seeing a condition in the folder does not mean that the folder is filtered. The end user must select and use the condition in a workbook.

Notes

- When you create a condition based on an analytic function (i.e. a function that computes aggregate values based on a group of rows), you must designate the condition Type as optional (for more information, see "[What are the different](#)

types of condition?"). If you choose mandatory, a message is displayed informing you that analytic functions are not allowed in mandatory conditions.

How to create advanced conditions

Advanced conditions are conditions that contain more than one condition statement. For example, if you want to filter data for the city New York in either 1999 or 2000, you might create the condition City = New York AND (Year = 1999 or 2000). You could then nest an existing condition within the existing advanced condition. For example, where Department = Video AND Rental Profit > \$100. In Discoverer, it is easy to add as many condition statements as you want, enabling you to build powerful condition items.

To create an advanced condition:

1. Create the first condition statement by following the instructions in ["How to create simple conditions"](#)
2. To add more condition statements, click Advanced.

Figure 11–2 New Condition dialog (Advanced)

The screenshot shows the 'New Condition' dialog box with the following details:

- Name:** City = 'New York' AND Calendar Year IN ('1999','2000') AND Department = 'Video Renta
- Generate name automatically
- Description:** New York, Video Rental Profit (over \$100) in 1999 or 2000
- Location:** Video Analysis Information
- Type:** Optional
- Formula:**

Group	Group	Item	Condition	Value(s)	
		City	=	'New York'	Add
		Calendar Year	IN	'1999', '2000'	Delete
AND		Department	=	'Video Rental'	And
	AND	Profit	>	100	Or
					Not
- Match case
- Formula:** City = 'New York' AND Calendar Year IN ('1999','2000') AND Department = 'Video Rental' AND Profit > 100
- Buttons:** OK, Cancel, Help

Discoverer adds Insert buttons for Add, And and Or. You use these buttons to create the advanced condition.

3. Build the advanced condition as follows:
 - a. Click Add to insert a new condition statement.
 - b. Specify the item for the new condition statement as follows:
 - Select the drop down list in the **Item** column and choose an item from the list of items displayed.
 - Select the drop down list in the **Item** column and choose the **Create Calculation** option to create a calculation to include in the advanced condition.
 - Select the drop down list in the **Item** column and choose the **Copy Condition** option to include a copy of an existing condition in the advanced condition. The copy can be edited as it is a copy of the original condition.
 - Select drop down list in the **Item** column and choose the **Select Condition** option to include an existing condition in the advanced condition. If you select an existing condition, it cannot be edited here.
 - c. Specify the condition and value for the new condition statement.
 - d. Specify how you want to combine the condition statements.

Note: You can use the handles next to each condition statement to highlight a condition statement and carry out the following actions:

- click a group and click AND to specify that all condition statements must be met for the condition
- click a group and click OR to specify that one of the condition statements must be met for the condition
- click a group and click NOT to specify that no condition statements must be met for the condition
- click Delete to remove condition statement lines from the condition.
- drag and drop a handle (next to a condition statement) to reposition the condition statement in a nested hierarchy.
- double click a group to change from AND to OR or vice versa

Note: If you reposition a condition statement, it can affect the order in which the condition statement is applied within the advanced condition (i.e. nested condition statements are applied first).

- When you have finished, click OK to save the advanced condition and close the dialog.

The new condition is displayed on the "Workarea: Data tab". When Discoverer users access this business area, they will see this condition item in the business area folder.

How to edit conditions

You edit a condition to change the way that it behaves. For example, you might want to:

- change the name of a condition
- change the data being returned by the condition
- create a more advanced condition

To edit a condition:

- On the "Workarea: Data tab", select the condition that you want to edit.
- Choose Edit | Edit... to display the "Edit Condition dialog".

Figure 11–3 Edit Condition dialog

Item	Condition	Value(s)
Department	IN	'Video Sale', 'Video Rental'

- Edit the condition details as required.

4. Click OK to save the details and close the dialog.

The updated condition is displayed on the "[Workarea: Data tab](#)".

Notes

- You can also use the "[Condition Properties dialog](#)" to change conditions.

How to edit condition properties

You edit a condition's properties to change the way that it behaves, or change its identifier (for more information, see [Chapter 3, "What are identifiers?"](#)), which is a unique Discoverer identification label. You can also change the way that a condition behaves by editing the condition itself (for more information, see "[How to edit conditions](#)").

To edit condition properties:

1. On the "[Workarea: Data tab](#)", select the condition that you want to edit.
2. Choose Edit | Properties to display the "[Condition Properties dialog](#)".
3. Edit the condition properties.
4. Click OK to save the details and close the dialog.

The "[Workarea: Data tab](#)" is updated to reflect any changes made to the condition.

How to delete conditions

You delete a condition when you want to remove it permanently from the business area. For example, you might have previously filtered data relating to the year 2000, and would now like Discoverer users to access data relating to all available years.

To delete a condition:

1. On the "[Workarea: Data tab](#)", select the condition that you want to delete.
2. Choose Edit | Delete to display the "[Confirm Delete dialog](#)".
3. Click Yes at the confirmation screen to remove the condition permanently.

The condition is removed from the business area.

Notes

- When Discoverer users next re-open workbooks that use a deleted condition, or refresh the worksheets using the deleted condition, previously filtered out data will be available to the Discoverer end users.

Example conditions

The following examples show how conditions are used in Discoverer Administrator.

Notes

- For more examples of conditions, see the *Oracle Application Server Discoverer Plus User's Guide*.

Example 1: Using a condition to find data for the year 2002

To create a condition that returns only data for the year 2002, enter the following in the Formula area of the New Condition dialog:

Item	Condition	Value
Year	=	2002

Example 2: Using a condition to find sales in the last seven days

To create a condition that only returns the sales in the last seven days (using the calculated item, "Transaction Age (in Days)"), enter the following in the Formula area of the New Condition dialog:

Item	Condition	Value
Transaction Age (in days)	<	7

Note that the Transaction Age calculated item has the following formula
FLOOR (SYSDATE - Transaction Date)

This type of condition is sometimes described as a "rolling window" condition because the "window" of rows it returns changes from day to day.

Example 3: Using a condition to find shipments in Quarter 3

To create a condition that only returns shipments made in quarter 3 (Q3) regardless of year (using the calculated item, 'Ship Quarter'), enter the following in the Formula area of the New Condition dialog:

Item	Condition	Value
Ship Quarter	=	'Q3'

Note that the Ship Quarter calculated item has the following formula:

EUL_DATE_TRUNC(Ship Date, "Q")

About outer joins and the DisableAutoOuterJoinsOnFilters registry setting

If you define an outer join between two tables, make sure you are aware of how conditions (filters) and the DisableAutoOuterJoinsOnFilters Discoverer registry setting can combine to affect the rows of data returned by an end user query.

You define an outer join between two tables to display:

- rows in a master table for which there are no corresponding rows in a detail table
- rows in a detail table for which there are corresponding rows in a master table

For example, you might want to display:

- department names and their employees, but also include the department names that have no employees
- employee names and their departments, but also include the employee names that do not belong to a department

In SQL, the outer join is signified by the plus (+) symbol.

Discoverer includes outer joins in SQL:

- when explicitly defined in Discoverer Administrator
 - For more information, see the ["Join Wizard: Step 2 dialog"](#).
- automatically under some circumstances

For example, Discoverer automatically creates outer joins in the SQL for end user queries that contain conditions.

When running a query that contains a condition, users will sometimes want the results to:

- include values from one table that have no corresponding values in a table to which it is joined by an outer join
- not include values from one table that have no corresponding values in a table to which it is joined by an outer join

The DisableAutoOuterJoinsOnFilters registry setting enables you to disable the use of automatically generated outer joins when conditions are used in end user queries. The table below summarizes the examples that follow:

Example No.	Condition applied?	Value of DisableAutoOuterJoinsOnFilters	All values displayed
Example 1	No	0 or 1	Yes
Example 2	Yes	0	No
Example 3	Yes	1	Yes

The following examples illustrate how outer joins, conditions, and the value of the DisableAutoOuterJoinsOnFilters registry setting can affect the rows of data returned from an end user query.

For more information about Discoverer registry settings, see [Chapter 20, "Discoverer registry settings"](#).

Example 1: No condition applied

This example illustrates the results returned when you execute a query against two tables, where the master and detail tables are joined with an outer join.

Discoverer displays:

- rows of data from the master table (dept) and detail table (emp)
- rows of data from the master table (dept) where no data exists for the detail table (emp)

The query is defined using the following SQL statement, where the outer join is signified by the plus (+) symbol:

```
select dname, ename, job from dept, emp where dept.deptno =
emp.deptno(+);
```

DNAME	ENAME	JOB
SALES	GRIMES	DIRECTOR
SALES	PETERS	MANAGER
SALES	SCOTT	CLERK
SUPPORT	MAJOR	MANAGER
SUPPORT	SCOTT	CLERK
ADMIN		
MARKETING		
DISTRIBUTION		

The results returned from the query above will not change whether you switch the DisableAutoOuterJoinsOnFilters registry setting on or off.

Example 2: Condition applied to query and DisableAutoOuterJoinsOnFilters set to 1 (switched off)

This example applies a condition to the query in Example 1 and the DisableAutoOuterJoinsOnFilters registry setting is switched off.

Discoverer displays:

- the data specified in the condition

Discoverer does not display:

- master rows for which there is no detail data

The following SQL statement is used, where the outer join is signified by the plus (+) symbol:

```
select dname, ename, job from dept, emp where dept.deptno =
emp.deptno(+) and job = 'CLERK';
```

DNAME	ENAME	JOB
SALES	SCOTT	CLERK

DNAME	ENAME	JOB
SUPPORT	SCOTT	CLERK

Example 3: Condition applied to query and DisableAutoOuterJoinsOnFilters set to 0 (switched on)

This example applies a condition to the query in Example 1 and the DisableAutoOuterJoinsOnFilters registry setting is switched on.

Discoverer displays:

- the data specified in the condition
- master rows for which there is no detail data (Null values)

The following SQL statement is used, where the outer join is signified by the (+) symbol:

```
select dname, ename, job from dept, emp where dept.deptno = emp.deptno(+) and job = 'CLERK';
```

DNAME	ENAME	JOB
SALES	SCOTT	CLERK
SUPPORT	SCOTT	CLERK
ADMIN		
MARKETING		
DISTRIBUTION		

Notes

- The database supports placing outer joins in IS NULL and IS NOT NULL clauses, but does not support placing outer joins in IN and OR clauses.

How to create row level security using a mandatory condition

You might want to restrict the data that end users can see in Discoverer workbooks.

For example, you have a single table with profit data for all regions. Each row of profit data applies to a transaction in a single region. You would like a manager in the West region to only access the rows with profit data for the West region.

REGION	PROFIT	DATE
East	\$100	8/7
West	\$50	8/7
South	\$65	8/10
North	\$100	8/6

To create row level security you must complete the following tasks:

- "Load the ALL_USERS table from the SYS view into the business area that contains the folder in which you want to apply row level security"
- "Create a new calculated item in the folder where you want to apply row level security"
- "Apply the list of values from the Username item (in the ALL_USERS table) to the new calculated item"
- "Create a mandatory advanced condition to define row level security in a folder for specified database users"

Load the ALL_USERS table from the SYS view into the business area that contains the folder in which you want to apply row level security

This task enables you to obtain a list of all the database users to which you can subsequently apply conditions and achieve row level security.

To load the ALL_USERS table into the business area where you want to apply row level security:

1. Select the business area that contains the folder in which you want to create row level security.
2. Choose Insert | Folder | From Database to display the "Load Wizard: Step 1 dialog".
3. Select the **Online dictionary** check box and click Next to display the "Load Wizard: Step 2 dialog".
4. Select the SYS user from the **Select the users whose tables you want to load** list box and click Next to display the "Load Wizard: Step 3 dialog".

The SYS user contains a view that holds the names of all database users.

5. Expand the SYS user in the **Available** list box and drag the ALL_USERS view into the **Selected** list box and click Next to display the "[Load Wizard: Step 4 dialog](#)".

This loads the ALL_USERS view into the current business area. The ALL_USERS view contains the names of all database user accounts.

6. Select the **List of values for items of type** check box and the **Character** check box, leaving all the other check boxes in this area cleared.

This will create a list of values of the names of all the database users.

7. Click Finish.

This loads the ALL_USERS view from the SYS table into the current business area.

8. (optional) Edit the folder properties of ALL_USERS and set the **Visible to user** property to No (for more information about how to edit folder properties, see "[How to edit folder properties](#)").

This makes sure that Discoverer does not display the ALL_USERS folder to end users.

Create a new calculated item in the folder where you want to apply row level security

You create a calculated item so that you can subsequently apply the list of values item class of all the database users from the SYS table.

To create a calculated item in the folder where you want to apply row level security:

1. Highlight the folder in which you want to create row level security (e.g. the Video Analysis folder).
2. Choose Insert | Item.
3. Type Username into the **Name** field.
4. Type USER into the **Calculation** field.
5. Click OK to create the new calculated item.

Apply the list of values from the Username item (in the ALL_USERS table) to the new calculated item

To apply the list of values item class to the calculated item created in the previous task:

1. Highlight the folder in which you want to apply row level security (e.g. the Video Analysis folder).
2. Click Insert | Item Class to display the "Item Class Wizard dialog".
3. Select **List of values** check box and click Next to display the "Item Class Wizard: Step 2".
4. Select the Username item from the All Users table that you loaded previously into the business area and click Next to display the "Item Class Wizard: Step 3".
5. Select the calculated item Username (that you created in the previous step) from the **Available items:** list and drag it into the **Selected** list.
6. Click Finish to apply the list of values to the calculated item 'Username'.

Create a mandatory advanced condition to define row level security in a folder for specified database users

You create a mandatory advanced condition so that you can apply data conditions to specified database users.

You must create a mandatory advanced condition that includes both:

- a condition statement defining the database user(s)
- one or more condition statements restricting data access to the specified database user(s)

To create a mandatory advanced condition to define row level security for the specified database user(s):

1. Highlight the folder in which you want to create row level security.
2. Choose Insert | Condition to display the "New Condition dialog".
3. (optional) Enter a description for the new condition.
4. Click the **Type** drop down list and choose Mandatory.
The Type Mandatory specifies that a condition always applies to end users.
5. Click the **Item** drop down list and select the calculated item Username.
6. Click the **Values** drop down list and choose **Select Multiple Values** to display the Values dialog.
7. Select a check box for each database user that you want row level security to apply then click OK.

Discoverer displays the selected database user(s) in the **Values** field.

Note: You have now created a mandatory simple condition specifying the names of one or more database users. However, before you can apply row level security to the database user(s) in the current folder, you must specify the data conditions that you want to apply to the specified database user(s).

The remaining steps describe how you can apply row level security to the specified database user(s) so that they can see only data from the West region.

8. Click the **Advanced** button and then the **Add** button.

This enables you to add a new condition statement to the current condition and specify a data condition to apply to the specified database user(s).

9. (example) Click the **Item** drop down list and select **Store.Region**.

This data condition will be applied to the specified database user(s).

10. (example) Click the **Values** drop down list and select the region **West**.

Note: The Username and Region condition statements must be grouped together using the AND clause in order to associate the database user(s) (Username) with the data condition (Region).

Each Username/data condition statement must group using the AND clause. Pairs of Username/data condition statements, must group together with other pairs using the OR clause. By grouping the pairs of Username/data condition statements using the OR clause ensures that each condition statement pair can be applied (see figure below).

Figure 11–4 Condition where one group of database users sees data from the 'West' region and the other group sees data from the 'East' region

Name: { Username IN ('ADMINTUTOR','ADMINTUTORNF','NICK') AND Region = 'West' OR Username IN ('ADMTEST','BUGOUT4130NF') AND Region = 'East' }

Generate name automatically

Description: 3 users can see data for the 'West' region, 3 other users can see data for the 'East' region.

Location: Video Analysis Information Type: Mandatory

Formula

Group	Group	Item	Condition	Value(s)
OR	AND	Username	IN	'ADMINTUTOR','ADMINTUTORNF','NICK'
		Region	=	'West'
	AND	Username	IN	'ADMTEST','BUG4','BUGOUT4130NF'
		Region	=	'East'

Match case

{ Username IN ('ADMINTUTOR','ADMINTUTORNF','NICK') AND Region = 'West' OR Username IN ('ADMTEST','BUG4','BUGOUT4130NF') AND Region = 'East' }

OK Cancel Help

11. Click OK.

This creates a mandatory advanced condition that applies row level security to the database user(s) specified (i.e. binding a group of users either to the West or the East region). In the example above, the database user ADMTEST can view data from the West region only.

12. (optional) Edit the Properties of the new condition and set the **Visible to user** property to No (for more information about editing condition properties, see ["How to edit condition properties"](#)).

This ensures that Discoverer does not display the condition to end users, but it is always enforced.

How to enable summary folders if a source folder includes a mandatory condition (e.g. with row level security)

When you create a mandatory condition in a folder, database user queries must not use a summary folder that is based upon the folder that contains the mandatory

condition. This is because the data in the summary table will be only for the database user that created the summary folder.

To enable database user queries to use summary folders where the source folders use mandatory conditions (e.g. with row level security), you must carry out the following steps before you create the mandatory condition.

To enable summary folders for database user queries where the source folders contain a mandatory condition:

1. Create a summary folder based upon folders where no mandatory condition (e.g. row level security) has yet been set up.

For more information about creating summary folders, see [Chapter 13, "Managing summary folders"](#) and [Chapter 14, "Creating summary folders manually"](#).

2. Set the summary property **Available for Queries** to 'No'.

This summary folder references data for the database user that created it. You must set this property to No to prevent end user queries from accessing this summary folder.

3. (optional) Set the summary folder properties **Next Refresh** and **Refresh Interval** to suitable values.

For more information, see the "[Summary Properties dialog](#)".

4. Create a database view against your summary folder.

Ask your database administrator for more information as this is done outside Discoverer.

Use a WHERE clause to apply the mandatory condition (e.g. row level security) to the view just created.

For example:

```
SQL> WHERE Userid='SMITH' AND Region='WEST'
```

5. Register the view in Discoverer as an external summary.

For more information, see [Chapter 14, "How to create summary folders based on external summary tables"](#).

6. Set the summary property **Available for Queries** to Yes.

You must set this property to Yes to enable database users to access this summary folder.

The **Next Refresh** and **Refresh Interval** summary folder properties should be set to Never in Discoverer.

For more information, see the "[Summary Properties dialog](#)".

7. Create the required mandatory condition (e.g. row level security) in a folder in Discoverer Administrator (for more information, see "[How to create row level security using a mandatory condition](#)").

Notes

- You cannot use analytic functions in external summary folders (for more information about analytic functions, see "[analytic functions](#)").

Creating and maintaining hierarchies

Creating and maintaining hierarchies

This chapter explains how to implement and maintain hierarchies using Discoverer Administrator, and contains the following topics:

- "What are hierarchies?"
- "What are item hierarchies?"
- "What are date hierarchies?"
- "How to create item hierarchies"
- "How to create date hierarchies and templates"
- "How to edit item hierarchies"
- "How to edit date hierarchy templates"
- "How to apply a date hierarchy template to a date item"
- "How to set the default date hierarchy template"
- "How to delete item hierarchies or date hierarchy templates"
- "How to modify default date hierarchies that use date format 'RR' following upgrade to Oracle Discoverer Administrator"
- "About creating a hierarchy using the CONNECT BY clause in a custom folder"
- "How to create a hierarchy with a custom folder and the CONNECT BY clause, using the emp table from the scott schema"

What are hierarchies?

Hierarchies are default drill paths between items that you define in Discoverer Administrator. You create hierarchies between items in a business area to provide Discoverer end users with a default drill hierarchy.

There are two kinds of hierarchy:

- item hierarchies
- date hierarchies

Discoverer end users can use hierarchies to:

- drill up to a more general level of detail (e.g. Store to City to Region to Country)
- drill down to a finer level of detail (e.g. Country to Region to City to Store)

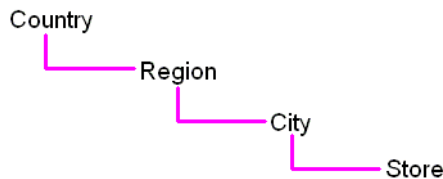
Hierarchies can link items in a business area where no relationship is defined in the database. For more information about business areas, see [Chapter 4, "What are business areas?"](#).

What are item hierarchies?

Item hierarchies are relationships between items other than dates.

An example of an item hierarchy:

Figure 12–1 Sales item hierarchy

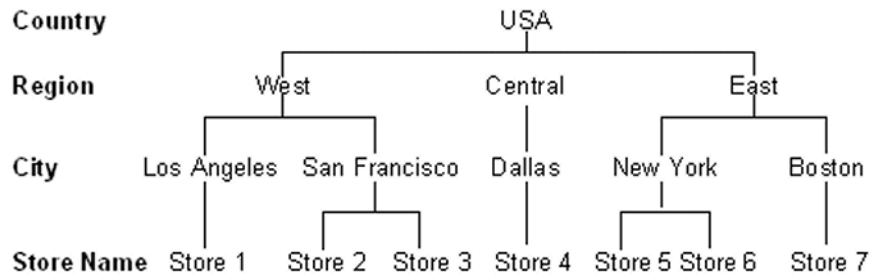


The Sales item hierarchy links a country with its regions, cities and stores.

To use this hierarchy a Discoverer end user could use a report that shows sales from a country perspective. The Discoverer end user could then drill down from country to see sales per region, sales per city or sales per store, and then drill back up to the country level.

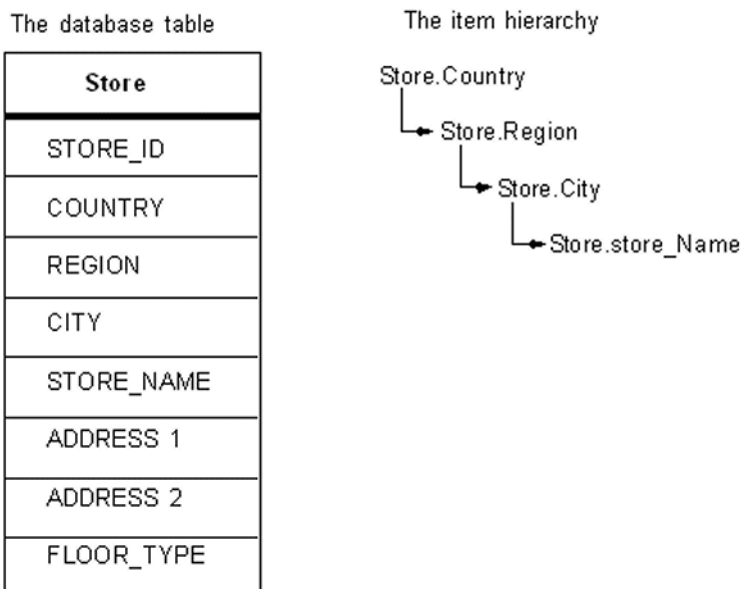
The Sales item hierarchy from a Discoverer end user perspective is shown below.

Figure 12-2 Sales item hierarchy - Discoverer end user perspective



The figure below shows the Sales item hierarchy from a database perspective.

Figure 12-3 Sales item hierarchy - database perspective



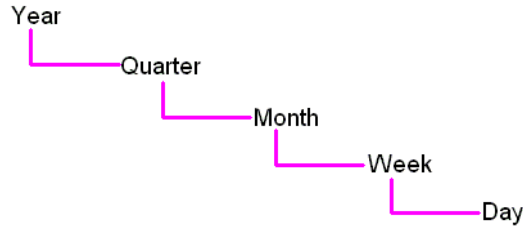
Note that you do not have to specify that Los Angeles is in the West. You only have to specify that City is under Region in your item hierarchy.

What are date hierarchies?

Date hierarchies are relationships between date items.

An example of a date hierarchy:

Figure 12-4 Sales date hierarchy

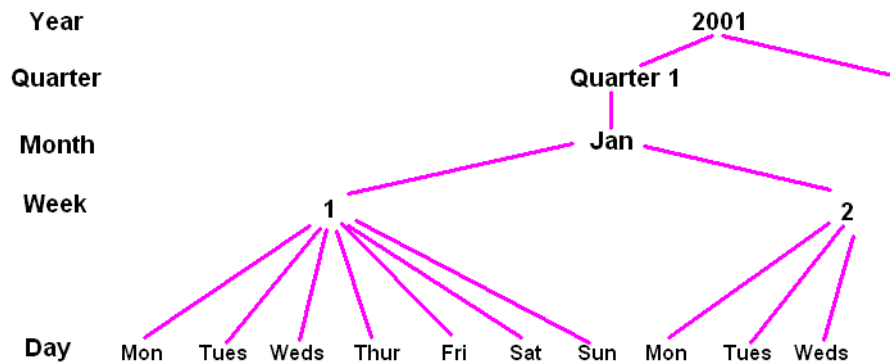


The Sales date hierarchy links a year with its quarters, months, weeks and days.

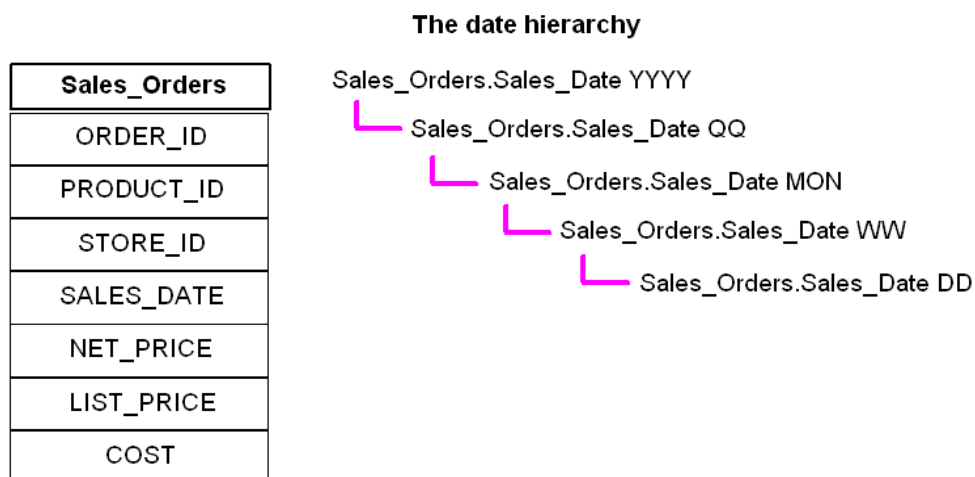
To use this hierarchy a Discoverer end user could use a report that shows total sales for each year. The Discoverer end user could then drill down from year to show sales per quarter, sales per month, sales per week and the sales per day, and then drill back up to sales per year.

A section of the Sales date hierarchy from a Discoverer end user perspective is shown below.

Figure 12-5 Sales date hierarchy - Discoverer end user perspective



The figure below shows the Sales date hierarchy from a database perspective.

Figure 12-6 Sample date hierarchy - database perspective

Note: Each level in the date hierarchy is a calculation based on the Sales_Orders.SALES_DATE column. The calculations are produced by a date hierarchy template (for more information, see "[What are date hierarchy templates?](#)").

What are date hierarchy templates?

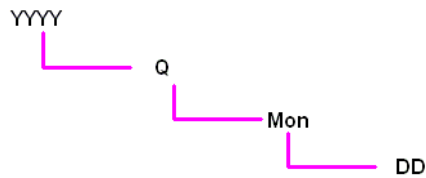
Date hierarchy templates enable you to define a date hierarchy that you can apply to date items. A date item uses information that specifies the date, month, year and time. Discoverer uses this information to calculate for example, quarter, week and days of the week. A date hierarchy template automatically creates items based on a date item, for example to represent the year or month

You will find it more efficient to re-use a date hierarchy template by applying it to date items rather than redefining the same date hierarchy repeatedly for each date item.

You can use the date hierarchy templates (supplied with Discoverer Administrator) to define many common date hierarchies, or you can create your own customized date hierarchies.

Discoverer Administrator includes a default date hierarchy template (see the Date hierarchy template figure below) that enables you to drill from year to quarter to month to day:

Figure 12-7 Date hierarchy template



About date hierarchies and performance

If you apply a date hierarchy to a date item from an indexed table, a query that includes one of these date items will not use the indexes (which can reduce performance). You can optimize performance in Discoverer Plus by applying date hierarchies to date items from tables that do not rely on indexes.

Example of how a date hierarchy can affect performance in Discoverer Plus

When you load a large fact table (i.e. a table with many rows) that contains a date column (e.g. `transaction_date`) Discoverer applies the default date hierarchy to the date item (for more information, see ["Load Wizard: Step 4 dialog"](#)).

Discoverer creates a folder containing date items such as Year, Quarter and Month using the `EUL_DATE_TRUNC` function (for more information, see [Chapter 8, "About truncating date items and the `EUL_DATE_TRUNC` function"](#)). When a Discoverer end user runs queries that include these items, any indexes that include the date item in the fact table are not used. Where indexes are not used, performance can be affected.

It is recommended therefore that you do not apply date hierarchies to date items in folders based on fact tables, as fact tables are likely to have indexes.

Example of how performance can be retained

To retain performance you should apply date hierarchies to a separate dimension table.

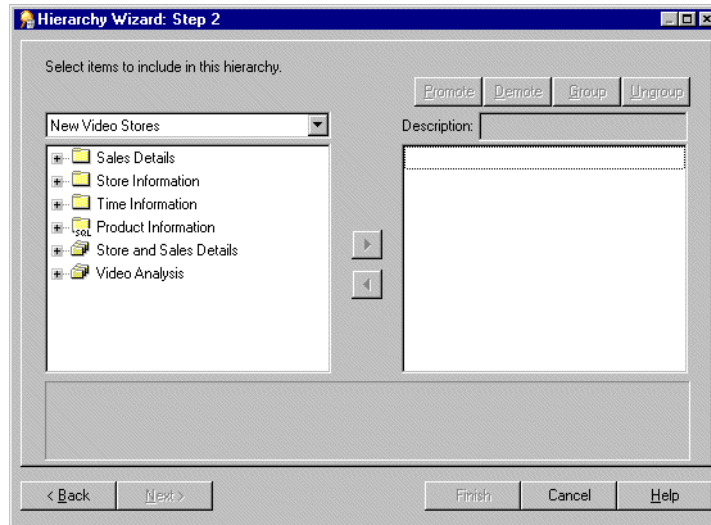
For example, a `transaction_date` item in a fact table might join to another dimension table (e.g. Time Period) that specifies time periods. You can load this dimension table using the Load Wizard and apply date hierarchies to it. You can then create a complex folder containing items from both the dimension and fact tables, including the items created by the date hierarchy such as Year or Quarter. When a Discoverer end user uses queries that include date hierarchy items Discoverer can use the date column indexes on the fact table. This can considerably improve performance.

How to create item hierarchies

To create an item hierarchy:

1. Choose Insert | Hierarchy to display the "Hierarchy Wizard dialog".
2. Select the Item Hierarchy radio button and click Next to display the "Edit Hierarchy dialog: Items tab".

Figure 12–8 Hierarchy Wizard: Step 2 dialog



Here you select which items to use in this item hierarchy.

3. Move the items that you want to include in this item hierarchy from the list on the left to the list on the right.

You can select more than one item at a time by holding down the Ctrl key and clicking another item.

Note: The order of items in the hierarchy list determines the drill down sequence that the Discoverer end user will use to analyze the data. The item hierarchy is arranged in the order that you include the items. For example, Region - City - Store.

Note: You can select items from multiple folders but the folders must be joined. If the folders are joined with more than one join, Discoverer will prompt you with the Choose Join dialog to select the correct join to use.

4. (optional) To move an item in the hierarchy to a different position, select the item in the right-hand list and click:
 - Promote to move the item higher in the hierarchy
 - Demote to move the item lower in the hierarchy
5. (optional) To group two or more items so that they appear on the same level of the hierarchy, select the items and click Group (for more information, see "[Hierarchy Wizard: Step 2](#)").

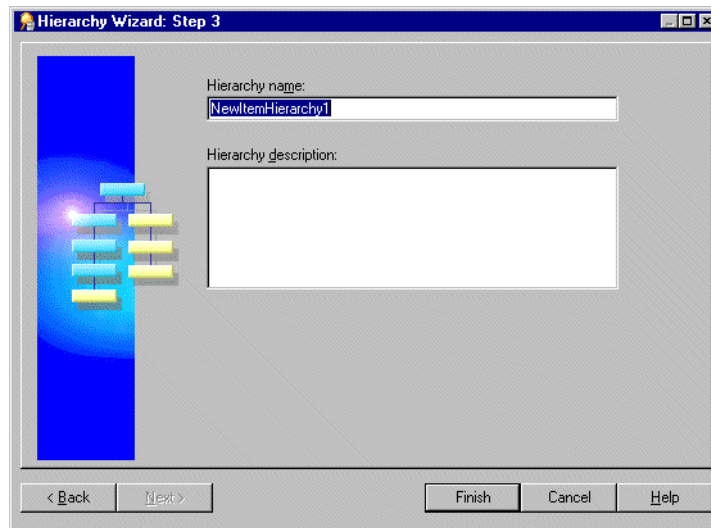
You can select more than one item at a time by holding down the Ctrl key and clicking another item.

Note: To ungroup a group of items in the hierarchy, select the group and click Ungroup.

6. (optional) To rename an item, click on the item in the right hand list and specify a name in the **Description** field.

The description you specify is the label the user sees in Discoverer Plus. If you don't specify a name, by default each level of the item hierarchy uses the item name.

7. Click Next to open the "[Hierarchy Wizard: Step 3](#)".

Figure 12–9 Hierarchy Wizard: Step 3 dialog

8. Specify a name and description for the new item hierarchy.
9. Click Finish to create the item hierarchy.

Discoverer displays the item hierarchy in the Hierarchies tab of the Workarea.

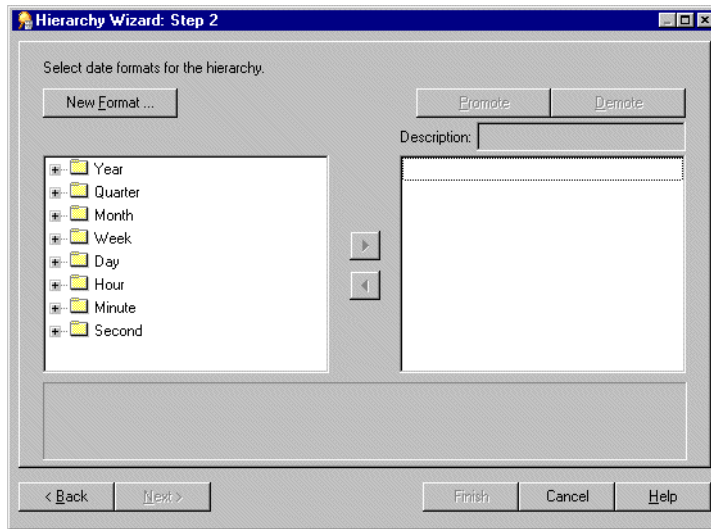
How to create date hierarchies and templates

Note: You can create date hierarchies only if you use an Oracle database.

To create a date hierarchy:

1. Choose Insert | Hierarchy to display the "Hierarchy Wizard dialog".
2. Select the Date Hierarchy option and click Next to open the "Hierarchy Wizard: Step 2".

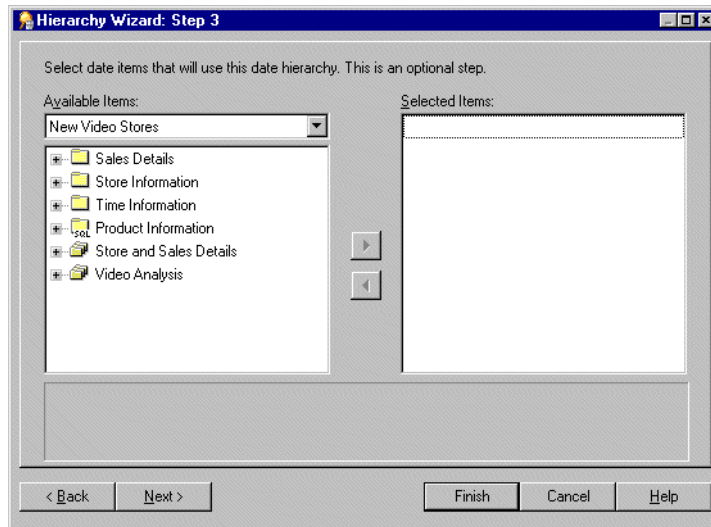
Figure 12–10 Hierarchy Wizard: Step 2 dialog



3. (optional) To create a new date format click New Format... to display the "[New Date Format dialog](#)".
4. Move the date formats to include in this date hierarchy from the list on the left to the list on the right.

You can select more than one date format at a time by holding down the Ctrl key and clicking another date format.
5. (optional) To move a date format in the hierarchy to a different position, select the date format in the list on the right and click:
 - Promote to move the date format higher in the hierarchy
 - Demote to move the date format lower in the hierarchy
6. (optional) To rename a date format, click on the date format in the list on the right and specify the new name in the **Description** field.

The description you specify is the label the user sees in Discoverer Plus.
7. Click Next to display the "[Hierarchy Wizard: Step 3](#)".

Figure 12–11 Hierarchy Wizard: Step 3 dialog

Here you select which date items will use this date hierarchy.

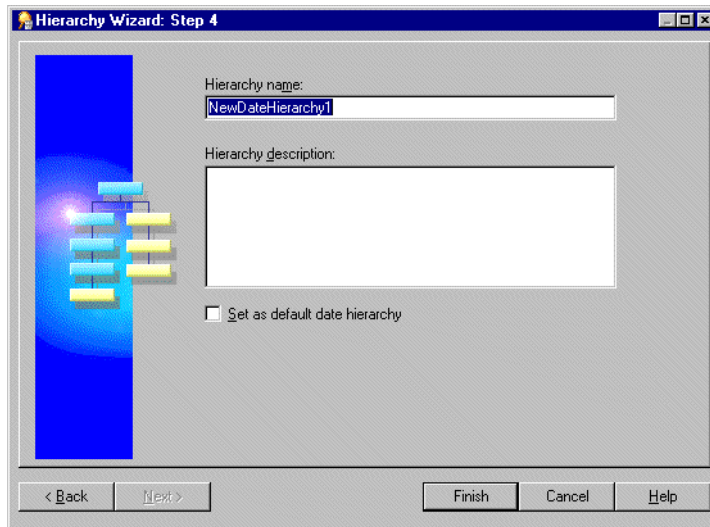
8. Move the date items that will use this date hierarchy from the **Available Items** list to the **Selected Items** list.

You can select more than one item at a time by holding down the Ctrl key and clicking another item.

Hint: To create just a date hierarchy template, do not select any date items on this page. Later, you can apply this template to date items by modifying their item properties (for more information, see ["How to apply a date hierarchy template to a date item"](#)).

9. Click Next to open the ["Hierarchy Wizard: Step 4"](#).

Figure 12–12 Hierarchy Wizard: Step 4 dialog



10. Specify a name and description for the new date hierarchy.
11. (optional) To make this date hierarchy template the default, select the **Set as default date hierarchy** check box.

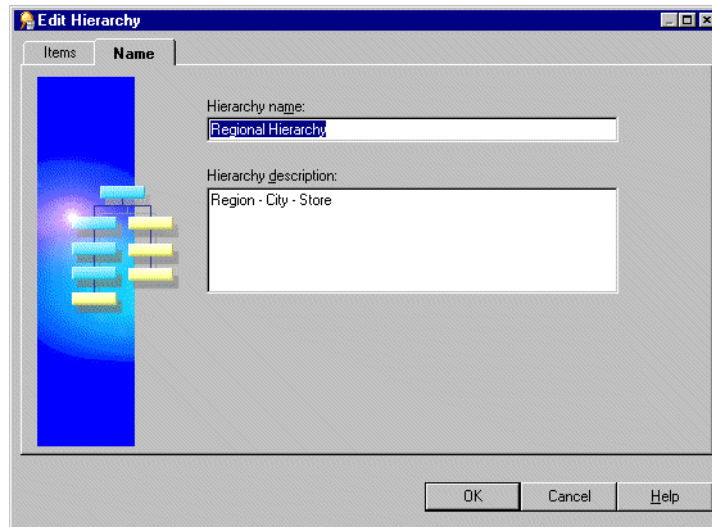
If you select the **Set as default date hierarchy** check box, the date hierarchy template is displayed as the default in the "[Load Wizard: Step 4 dialog](#)" in the drop down list under the **Date hierarchies** check box.
12. Click Finish to create the date hierarchy and apply it to the date items that you selected in the Hierarchy Wizard: Step 4 dialog.

The date hierarchies and the date hierarchy template now appear on the "[Workarea: Hierarchies tab](#)".

How to edit item hierarchies

To edit an existing item hierarchy:

1. Select a hierarchy on the Hierarchies tab and choose Edit | Edit...to display the "[Edit Hierarchy dialog: Name tab](#)".

Figure 12–13 Edit Hierarchy dialog: Name tab

2. Edit the Hierarchy as required.

The Edit Hierarchy dialog is divided into two tabs.

- Items
Use this tab to add or remove the items that use this hierarchy.
- Name
Use this tab to edit the hierarchy's name and description.

For more information about the above tabs see "[Edit Hierarchy dialog: Items tab](#)" or "[Edit Hierarchy dialog: Name tab](#)".

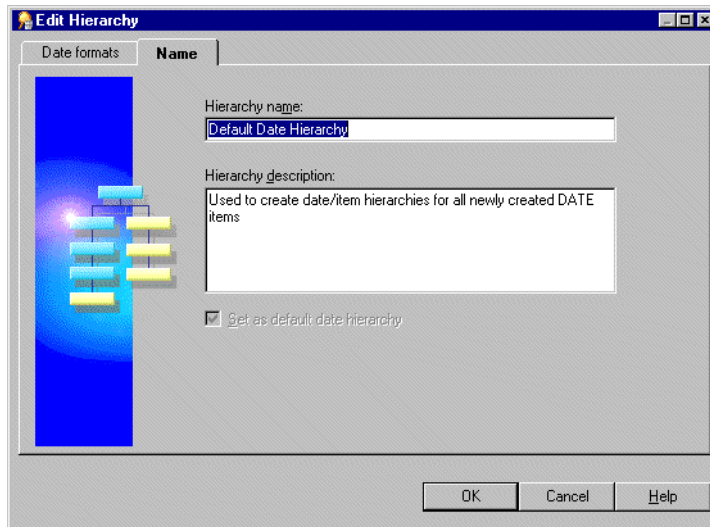
3. Click OK.

How to edit date hierarchy templates

This section describes how to edit an existing date hierarchy template. When you edit a date hierarchy template, all date items that use the date hierarchy template are modified to reflect the changes.

1. Click the date hierarchy template on the Hierarchies page and choose Edit | Edit... to display the "[Edit Hierarchy dialog: Name tab](#)".

Figure 12–14 Edit Hierarchy dialog: Name tab



2. Edit the hierarchy as required.

The Edit Hierarchy dialog is divided in to two tabs:

- Date formats

Use this tab to change the date formats and their position in this date hierarchy template.

- Name

Use this tab to edit the date hierarchy template's name and description.

For more information about the above tabs see "[Edit Hierarchy dialog: Date formats tab](#)" or "[Edit Hierarchy dialog: Name tab](#)".

3. Click OK.

How to apply a date hierarchy template to a date item

This section describes how to apply a date hierarchy template to an existing date item.

When you apply a date hierarchy template to an existing date item, Discoverer Administrator automatically creates all the date items that are required to complete the date hierarchy. These new date items appear in the same folder as the original

date item (prefixed with the name of the original date item). If you change the date hierarchy template that is applied to a date item, Discoverer creates new date items to reflect the new date hierarchy template. However Discoverer does not remove the date items from the previous date hierarchy. If you want to remove date items from a previous date hierarchy you must remove them manually.

For example, if you create the date hierarchy YY/QQ/MM and assign it to the date item Transaction Date, Discoverer creates the following items in the folder:

- Transaction Date YY
- Transaction Date QQ
- Transaction Date MM

If you then create a new date hierarchy WW/DD and assign it to Transaction Date, Discoverer creates the following additional items in the folder:

- Transaction Date WW
- Transaction Date DD

Discoverer does not delete the other three date items created previously.

To apply a date hierarchy template to a date item:

1. Click the date item on the Data tab and choose Edit | Properties to display the ["Item Properties dialog"](#).

Hint: To apply a single date hierarchy template to more than one date item at a time, select all the date items before opening the Properties dialog. For more information, see [Chapter 8, "How to edit item properties"](#).

2. Select the date hierarchy template for this date item to use from the drop-down list in the **Date Hierarchy** field.

Select None to make the date item not use a date hierarchy template.

3. Click OK.

How to set the default date hierarchy template

The default date hierarchy template is displayed as the default selection in the Load Wizard step 4 in the **Date hierarchies, using:** drop down list. For more information see ["Load Wizard: Step 4 dialog"](#).

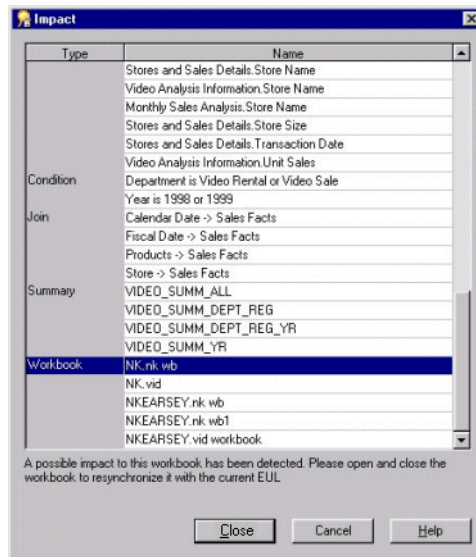
To set the default date hierarchy template:

1. Expand the Date hierarchy templates on the "[Workarea: Hierarchies tab](#)" to display all the date hierarchy templates.
2. Select the date hierarchy template you want to set as the default.
3. Choose Edit | Edit...to display the "[Edit Hierarchy dialog: Name tab](#)".
4. Select the **Set as default date hierarchy** check box on the Name tab.
5. Click OK.

How to delete item hierarchies or date hierarchy templates

To delete item hierarchies or date hierarchy templates:

1. Select the item hierarchy or date hierarchy template on the "[Workarea: Hierarchies tab](#)".
You can select more than one hierarchy at a time by holding down the Ctrl key and clicking another hierarchy.
2. Choose Edit | Delete to open the "[Confirm Delete dialog](#)".
3. (optional) To see the objects that might be affected by deleting this hierarchy or hierarchy template:
 - a. Click Impact to display the "[Impact dialog](#)".

Figure 12–15 The Impact dialog

The Impact dialog enables you to review the other EUL objects that might be affected when you delete a hierarchy or hierarchy template.

Note: The Impact dialog does not show the impact on workbooks saved to the file system (i.e. in .dis files).

- b. (optional) Select a row to view text at the bottom of the list, indicating what affect the current action will have on the EUL object.
 - c. When you have finished reviewing the impact of deleting the hierarchy or hierarchy template, click Close to close the Impact dialog.
4. Click Yes to delete the selected hierarchies or hierarchy templates.

How to modify default date hierarchies that use date format 'RR' following upgrade to Oracle Discoverer Administrator

After upgrading to Oracle Discoverer Administrator, if a date format in a default date hierarchy uses the date format 'RR' you must modify it to 'YYYY' and then remove any affected date items (i.e. date items that use the 'RR' date format) from the business area. This action is necessary to ensure that materialized views can be successfully created (for more information about materialized views, see [Chapter 13, "What are materialized views?"](#)).

To modify a default date hierarchy that uses the date format 'RR' so that it uses 'YYYY' you must complete the following tasks:

- ["Modify default date hierarchy replacing the date format 'RR' with 'YYYY'"](#)
- ["Remove remaining date items that use the date format 'RR'"](#)

Modify default date hierarchy replacing the date format 'RR' with 'YYYY'

To modify a default date hierarchy to use the date format 'YYYY':

1. Click the ["Workarea: Hierarchies tab"](#).
2. Expand **Date hierarchy templates** then highlight the default date hierarchy that uses the date format 'RR'.
3. Choose Edit | Edit... to display the ["Edit Hierarchy dialog: Date formats tab"](#).
4. Replace each 'RR' date format with a 'YYYY' date format.

Note: Repeat the above steps for each affected default date hierarchy.

5. Click OK to save your changes.

Once you have applied the 'YYYY' format to the affected default date hierarchy, you can remove remaining date items that use the date format 'RR'.

Remove remaining date items that use the date format 'RR'

To remove date items that use the date format 'RR':

1. Click the ["Workarea: Data tab"](#).
2. Highlight a date item that uses the date format 'RR'.
3. Choose Edit | Delete to delete the affected date item.
4. Repeat the above steps for each date item that still uses the date format 'RR'.

About creating a hierarchy using the CONNECT BY clause in a custom folder

A database table might contain a recursive hierarchy, that is where a relationship exists between different records in one table. This form of hierarchy is not unlike a series of self joins and it cannot be used directly by Discoverer (sometimes described as a value hierarchy). However, you can make Discoverer use a recursive hierarchy if you create a custom folder and use the CONNECT BY clause.

For example, if you look at the emp table in the Scott schema (supplied with Oracle databases), some of the numbers appear in both of the columns empno and mgr. The numbers appear in both columns because an employee's manager is identified by the employee number. This illustrates how a recursive hierarchy exists in the emp table.

The table below illustrates the relationships that exist between rows in the columns empno, ename and mgr from the emp table.

EMPNO	ENAME	MGR
7369	SMITH	7902
7499	ALLEN	7698
7521	WARD	7698
7566	JONES	7839
7654	MARTIN	7698
7698	BLAKE	7839
7782	CLARK	7839
7788	SCOTT	7566
7839	KING	
7844	TURNER	7698
7876	ADAMS	7788
7900	JAMES	7698
7902	FORD	7566
7934	MILLER	7782

Discoverer cannot create a hierarchy directly using the above table. However, you can create a hierarchy from this table if you first use the CONNECT BY clause of the SELECT statement to create a custom folder. You can then use the custom folder as the basis of a hierarchy that Discoverer can use.

To create a hierarchy in Discoverer that uses the information in the above table, you would need a table that is similar to the following table that Discoverer might use to create a hierarchy:

TOP_LEVEL	2nd_LEVEL	Nth_LEVEL	EMPNO	ENAME
KING	CLARK		7934	MILLER

The above table displays the name of an employee (ename) and all the managers for that employee. In this table Miller has two levels of manager, his immediate manager being Clark.

To create a table like the one above (i.e. based on columns from the emp table) and subsequently create a hierarchy between the levels, complete the following task:

- ["How to create a hierarchy with a custom folder and the CONNECT BY clause, using the emp table from the scott schema"](#)

How to create a hierarchy with a custom folder and the CONNECT BY clause, using the emp table from the scott schema

You might want to create a hierarchy based on values in a table (e.g. the emp table in the scott schema). Discoverer Plus users will be able to create workbooks and use this hierarchy to drill up and down between the different levels of employees.

To create a hierarchy, with a custom folder and the CONNECT BY clause, using the emp table from the scott schema:

1. Create a custom folder and name it Recursive Hierarchy using the following SQL statement (for more information, see ["How to create custom folders"](#)):

```
SELECT DISTINCT empno, mgr, level
FROM scott.emp
CONNECT BY mgr = PRIOR empno
START WITH mgr IS NULL
```

The above SQL statement creates a table that contains the following result set:

EMPNO	MGR	LEVEL
7369	7902	4
7499	7698	3
7521	7698	3
7566	7839	2
7654	7698	3
7698	7839	2
7782	7839	2
7788	7566	3
7839		1
7844	7698	3
7876	7788	4
7900	7698	3
7902	7566	3

Note the following points about the SQL statement in the custom folder you created in the above step:

- the column named Level
This is a pseudo-column generated by the CONNECT BY function that is used to define the hierarchy in Discoverer.
- the word PRIOR used in the CONNECT BY statement
This makes the SQL look for the next row in which the mgr column is equal to the value in the empno column in the prior row.
- the START WITH statement
This instructs the SQL to start where mgr is null (i.e. with the top manager).

For more information about the CONNECT BY statement, refer to the *Oracle 8i SQL Reference, Volume 2*.

2. Set the custom folder property **Visible to user** to No (for more information, see "[How to edit folder properties](#)").

This makes sure that end users cannot access this custom folder.

Note: Although the Level column provides the information needed to create a hierarchy, you first need to separate the rows by Level. You achieve this by creating a complex folder for each level.

3. Create a complex folder for each level (for more information, see ["How to create complex folders"](#)).

In this example, you create four complex folders.

Hint: To create each complex folder, drag all three items (i.e. Empno, Mgr and Level) from the custom folder Recursive Hierarchy into each new complex folder in turn.

4. Name each of the four new complex folders Level1, Level2, Level3, Level4 respectively (for more information, see ["How to edit folder properties"](#))
5. Apply a mandatory condition to each complex folder (for more information, see ["How to create simple conditions"](#)).

Hint: For example, the condition you apply to the complex folder containing data at level 3 is:

Level = 3.

6. Create joins to join the complex folders to each other (for more information, see ["How to create joins"](#)).

Hint: Use the empno and mgr items to do this. Create a join between the complex folder for Level1 and the folder for Level2 as follows:

Level1.empno = Level2.mgr.

Follow the above rule for joining the Level2 folder to the Level3 folder and the Level3 folder to the Level4 folder. These joins reflect the hierarchy you want to create.

7. Set the folder property **Visible to user** for each of these complex folders to No (for more information, see ["How to edit folder properties"](#)).
8. Create another complex folder and give it an appropriate name (e.g. Chain of Command).

Note: This is the complex folder that end users will see.

9. Drag across into the Chain of Command folder, the Empno item from each of the four complex folders created in step 3 above and rename each one as soon as you have dragged it across.

Hint: For each Empno item that you drag from one of the folders Level1, Level2, Level3 and Level4 you must rename each appropriately (e.g. Empno1, Empno2 Empno3, Empno4).

This gives you the following result set that Discoverer can use to build a hierarchy:

Empno1	Empno2	Empno3	Empno4
7839	7698	7499	
7839	7698	7521	
7839	7698	7654	
7839	7698	7788	
7839	7698	7844	
7839	7782	7900	
7839	7566	7902	7369

10. Create a hierarchy based on the items in this folder (for more information, see ["How to create item hierarchies"](#)) represented by the columns in the table above.

Discoverer Plus users will be able to create workbooks and use this hierarchy to drill up and down between the different levels of employees.

Managing summary folders

Managing summary folders

This chapter explains summary folders and how you manage them using Discoverer Administrator, and contains the following topics:

- "About folders and summary folders in Discoverer"
- "What are summary folders?"
- "What are Discoverer summary tables?"
- "What are materialized views?"
- "What is Automated Summary Management (ASM)"
- "How does ASM work?"
- "What are the prerequisites for creating summary folders with ASM?"
- "What are the different ways to run ASM and when do you use them?"
- "What is the ASM policy?"
- "Why must you refresh summary data?"
- "What happens when a summary folder is refreshed?"
- "How to run ASM using the Summary Wizard"
- "How to run ASM after bulk load using the Load Wizard"
- "How to run ASM using the command line interface"
- "How to run ASM using a batch file and the operating system scheduler"
- "How to configure the database for summary folders"

About folders and summary folders in Discoverer

Discoverer uses two kinds of folders:

- folders - represent data

Discoverer folders are classified as simple, complex, or custom. For more information, see [Chapter 5, "What are folders?"](#).

- summary folders - represent data that has been queried and the results saved for reuse

Discoverer uses summary folders to improve query response times for end users.

What are summary folders?

Summary folders are a representation of queried data (created in Discoverer Administrator) that has been saved for reuse. The data is stored in the database in one of the following (depending on the version of Oracle):

- materialized views

Discoverer uses materialized views to store summarized data in Oracle 8.1.7 (or later) Enterprise Edition databases.

- tables

Discoverer uses tables to store summarized data in Oracle Standard Edition databases.

The tables created by Discoverer to store summarized data are called Discoverer summary tables. For more information about Discoverer summary tables, see ["What are Discoverer summary tables?"](#).

Summary folders improve the response time of a query because the query accesses pre-aggregated and pre-joined data rather than querying against the detail database tables.

You can also direct Discoverer to use summary folders based on tables containing summary data that have been created by another application. These tables are known as external summary tables. You can specify that Discoverer refreshes external summary tables.

You can create summary folders in one of two ways:

- using the Automated Summary Management (ASM) feature (for more information, see ["What is Automated Summary Management \(ASM\)"](#))

- manually (for more information, see ["What is manual summary folder creation?"](#))

The recommended method for creating summary folders in Discoverer is to use Automated Summary Management (ASM).

What are Discoverer summary tables?

Discoverer summary tables are database tables created by Discoverer Administrator that contain summarized data. Discoverer summary tables contain pre-aggregated and pre-joined data, and can improve query performance in Discoverer Plus and Discoverer Viewer.

Discoverer automatically recognizes when a summary table is available and rewrites the query to use the summary table. For more information, see [Chapter 15, "What is query rewrite?"](#).

For example, when a query is run for the first time in Discoverer Plus it retrieves data from the detail tables. This may require a multiple table join and aggregation over thousands or millions of rows, which could take some time to complete. If Discoverer has created a suitable summary table, the same query retrieves data from the summary table and will return results in a few seconds. Both queries will produce the same results.

For more information about Discoverer and rewriting queries to summary tables with Oracle Standard Edition databases, see [Chapter 15, "Example illustrating the advantages of rewriting a query to use a summary table"](#).

Note: Circumstances sometimes prohibit the creation of materialized views and result in the creation of Discoverer summary tables when running against Oracle 8.1.7 (or later) Enterprise Edition databases. For more information, see [Chapter 15, "What is different between mapping external summary tables and views to EUL items, with Oracle 8.1.7 \(or later\) Enterprise Edition databases?"](#).

What are materialized views?

Materialized views are database objects that contain the results of a query created by an Oracle 8.1.7 (or later) Enterprise Edition database. The query results contain pre-aggregated and pre-joined data and can improve query performance in Discoverer Plus and Discoverer Viewer.

Oracle 8.1.7 (or later) Enterprise Edition databases automatically recognize when a materialized view can be used to satisfy a query request. The database rewrites the

query to use the materialized view. Queries are then directed to the materialized view and not to the underlying detail tables or views.

Materialized views have the following characteristics:

- Materialized views consume storage space.
Unlike ordinary views, materialized views contain data resulting from a query against one or more detail tables.

- Materialized views must be refreshed when data changes.

The Oracle database maintains data in materialized views by refreshing the materialized views after changes are made to the detail tables.

You can configure Discoverer:

- to set the Refresh Type to incremental (i.e. fast refresh, where only the changes made to the detail tables are refreshed) or full (i.e. complete, where the database executes the defining subquery of the materialized view)
- to set the Refresh to On demand (i.e. manually maintained by the Discoverer manager) or On commit (i.e. whenever a database transaction commits its changes to the detail tables), where the materialized view is in the same database as the detail tables
- Materialized views are transparent to Discoverer users.

Query rewrite transforms a SQL statement expressed in terms of the detail table into a statement accessing one or more materialized views that are defined on the detail tables. For more information, see [Chapter 15, "What is query rewrite?"](#).

Notes

- You do not need to register external materialized views with Discoverer for end user queries to use them, as the database knows whether a materialized view can satisfy the query. You only register an external materialized view with Discoverer if you want Discoverer to maintain the refresh for you (for more information about registering external summary tables/views, see [Chapter 14, "How to create summary folders based on external summary tables"](#)).
- The SQL Inspector/Explain Plan in Discoverer Plus indicates whether the SQL generated to run a query used a summary table or a materialized view (for more information, see ["About viewing the SQL and execution plan for query rewrite in Discoverer"](#)).

- For an historical context about Discoverer's use of summary tables/materialized views, see [Chapter 15, "What is the context and future for Discoverer's use of summary tables/materialized views?"](#).

For more information about the differences between Discoverer summary tables and materialized views, see:

- [Chapter 15, "What characteristics differ between summary folders in Oracle Standard Edition databases and Oracle 8.1.7 \(or later\) Enterprise Edition databases?"](#)
- [Chapter 15, "What is different about summary folders that are based on external summary tables?"](#)
- [Chapter 15, "What is different between mapping external summary tables and views to EUL items, with Oracle 8.1.7 \(or later\) Enterprise Edition databases?"](#)

What is Automated Summary Management (ASM)

Automated Summary Management (ASM) is a Discoverer facility that creates and manages summary folders for you.

ASM simplifies the process of summary folder creation and maintenance by offering you a fully automated solution to summary folder management. When run periodically, ASM can automatically refine the summary folders it creates using query statistics gathered by Discoverer from user queries. ASM also provides guidance should you wish to control the specification of default values during summary folder creation/maintenance.

How does ASM work?

ASM determines how to create summary folders by:

- analyzing your database tables
- using query statistics (when available)
- using default values known as the ASM policy (for more information, see ["What is the ASM policy?"](#))

ASM automatically creates and maintains the best set of summary folders based on the above combination.

ASM converts your summary policy into a list of recommended summary folder definitions. You can either implement these recommendations without further

intervention (the actual set of summary tables dynamically adjusts with system usage) or execution can be stalled until you have specifically sanctioned one or more of the recommendations.

ASM requires table space to create summary folders but you can adjust how much space in the Summary Wizard (for more information, see ["How to run ASM using the Summary Wizard"](#)).

Note: ASM works on the EUL as a whole, not just the currently selected business areas. This means that ASM can use folders from all business areas in the current EUL.

What are the prerequisites for creating summary folders with ASM?

To create summary folders with ASM, the following requirements must be met:

- The database must support PL/SQL.
- The DBMS_JOB package must be installed for scheduling summary folder creation and refresh (for more information, see ["How to confirm that DBMS_JOB is installed for summary management"](#)).
- The User ID that you intend to use to create the summary folders must have the following database privileges (for more information, see ["How to use SQL*Plus to grant the privileges required to create summary folders"](#) for details about granting these privileges):
 - CREATE TABLE
 - CREATE VIEW
 - CREATE PROCEDURE
 - SELECT ON V_\$PARAMETER
 - CREATE/DROP/ALTER ANY MATERIALIZED VIEW (Oracle 8.1.7 Enterprise Edition databases or later)
 - GLOBAL QUERY REWRITE (Oracle 8.1.7 Enterprise Edition databases or later)
 - ANALYZE ANY
- The User ID that you intend to use to create summary folders must have sufficient quota in the tablespace for the summary tables to be created (for more information, see ["How to determine and reset tablespace quotas"](#)).
- You must connect to Discoverer Administrator as the EUL owner.

- If you are using an Oracle 8.1.7 Enterprise Edition database (or later), your folders must not contain SET operators (e.g. UNION, UNION ALL, MINUS, INTERSECT). If ASM finds a folder that contains a SET operator, summary data will not be created for that folder.

Note: For more information about Oracle SET operators, see the *Oracle 8i SQL Reference*.

Note: A database user created in Discoverer may need additional privileges to enable them to create summary folders. The conditions that determine when this is true are detailed in the following table, that illustrates when a database user created in Discoverer requires additional privileges to create summary folders:

The version of Discoverer and/or database version under which the database user is created?	Does the database user require further privileges to create summary folders?	What action is required?
Discoverer 3.1.	Yes, the database user requires further privileges to create summary folders.	You must explicitly grant the required privileges to the database user (for more information about how to grant these privileges, see "How to use SQL*Plus to grant the privileges required to create summary folders").
Discoverer 4i against an Oracle 8.0 database (or earlier).	Yes, the database user requires further privileges to create summary folders.	Same action as above.
Discoverer 4i against an Oracle 8.1.7 Enterprise Edition database (or later).	No, the database user requires no further privileges to create summary folders.	No action is required.

What are the different ways to run ASM and when do you use them?

There are a number of ways that you can run ASM. The following table shows the different ways that you can run ASM and when to use them:

How to run ASM?	Why run ASM this way?	For information see
Using the Summary Wizard.	Discoverer leads you through the whole process.	"How to run ASM using the Summary Wizard" .

How to run ASM?	Why run ASM this way?	For information see
Using the Load Wizard after bulk load.	Enables you to create summary folders during the load of a business area without having to access ASM independently.	"How to run ASM after bulk load using the Load Wizard" .
Using the command line interface.	Enables you to create summary folders without having to start Discoverer.	"How to run ASM using the command line interface" .
Using a batch file and the Operating System scheduler.	Automates the scheduling of ASM summary folder creation through the command line.	"How to run ASM using a batch file and the operating system scheduler" .

What is the ASM policy?

The ASM policy is a set of user defined constraints and options that enable you to control how ASM behaves and what summary folders it produces.

The ASM policy is divided into space options and advanced settings. In many cases you will only need to set the space options.

For more information about space options and advanced settings, see:

- ["Summary Wizard \(ASM\): Step 3 Allocate Space dialog"](#)
- ["Summary Wizard \(ASM\): Change default settings: List of dialog tabs"](#)

Discoverer provides default settings that ensure suitable summary folders are created and maintained without your intervention.

The minimum information required for an ASM policy is a tablespace name and an allocated amount of disc space. The tablespace defaults to the user tablespace, and a default amount of disc space is used. Both of these values can be changed if required (for more information, see ["Summary Wizard \(ASM\): Step 3 Allocate Space dialog"](#)).

Why must you refresh summary data?

You must refresh summary data regularly to keep summary tables and materialized views consistent with the database. If the database changes often, summary tables and materialized views need to be refreshed accordingly to keep their data current with the underlying database.

For information about refreshing summary folders see:

- ["What happens when a summary folder is refreshed?"](#)
- [Chapter 14, "How to manually refresh a summary folder"](#)
- [Chapter 15, "About refresh options for Oracle 8.1.7 \(or later\) Enterprise Edition databases"](#)
- [Chapter 15, "About refreshing summary folders following import between Oracle databases"](#)

Note: Sometimes it is useful to refresh a summary folder after a change has occurred (e.g. the loading of data into a data warehouse). You can use the Discoverer command line interface facility to automatically refresh a summary folder (for more information, see ["Oracle Discoverer command line interface"](#)).

What happens when a summary folder is refreshed?

When a summary folder is refreshed (when running against Oracle 8.1.7 Enterprise Edition databases or later), the database server's own refresh mechanism is used (this can be an incremental refresh) depending on your refresh settings.

Whenever a summary folder is refreshed, the following actions are performed by Discoverer:

- The summary folder is marked as unavailable.
- The materialized view or summary table associated with summary folder is reconciled against its EUL metadata and if necessary the definition is updated.
- All existing summary data that is about to be refreshed is deleted.
- The summary data is regenerated and inserted into the corresponding materialized views or summary tables.
- The summary folder is marked as available.

How to run ASM using the Summary Wizard

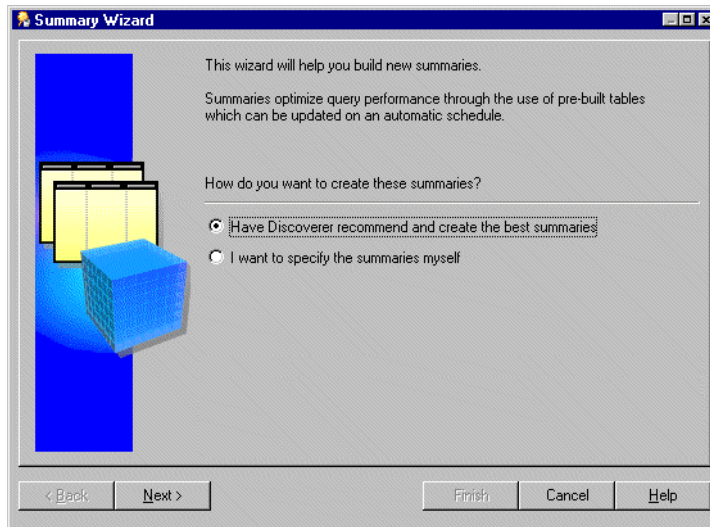
You need certain database privileges to run ASM (for more information about the privileges required to run ASM, see ["What are the prerequisites for creating summary folders with ASM?"](#)).

To see a list of headings that point to more information about the Summary Wizard dialogs, see ["Summary Wizard \(ASM\): List of dialogs"](#).

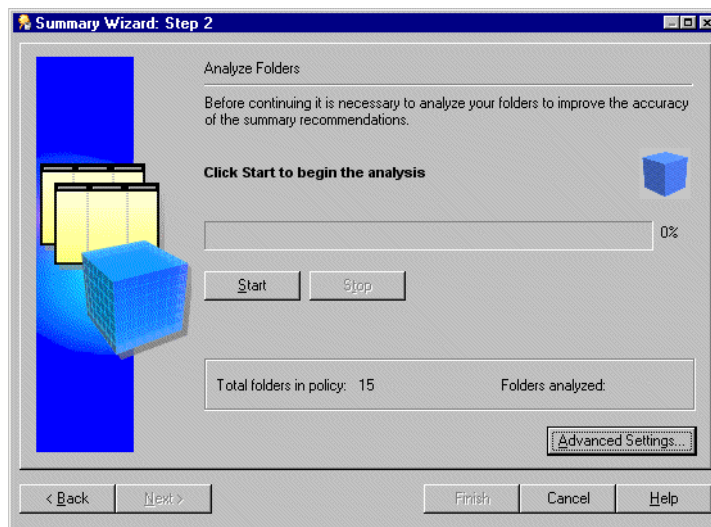
To start the summary wizard:

1. Choose Insert | Summary to display the "Summary Wizard: Step 1 dialog".

Figure 13–1 Summary Wizard dialog



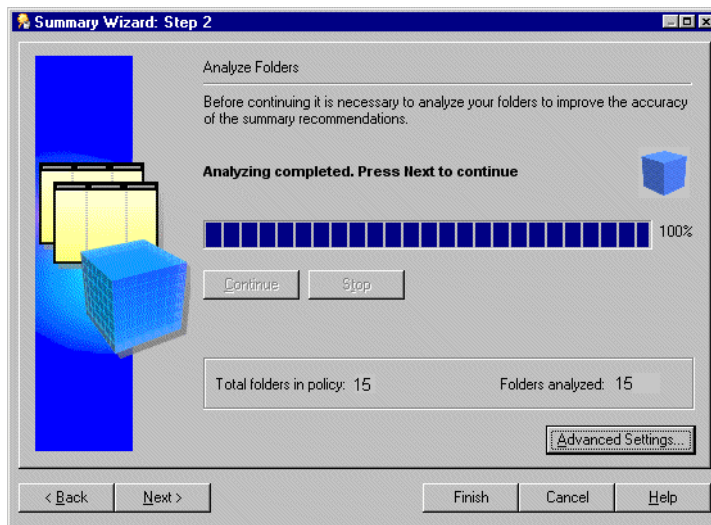
2. Select the **Have Discoverer recommend and create the best summaries** radio button and click Next to display the "Summary Wizard: Step 2 dialog".

Figure 13–2 Summary Wizard: Step 2 dialog

Note: To determine which summary folders to create Discoverer analyzes every folder that is to be involved in the summary folder process. Depending on the number and size of folders to be analyzed this could take some time to complete. Discoverer allows you to start and stop this process at your own pace.

3. Click the Start button to begin the analysis:
Your progress will be displayed during the analyze process.
4. (optional) Click the Stop button to pause the analysis.
You might want to pause the analysis to make changes to the default settings (using the Advanced Settings button) before resuming table analysis.
5. (optional) Click the Continue button to resume the analysis.
The analysis always resumes from exactly the same point in the process at which the Stop button was clicked.

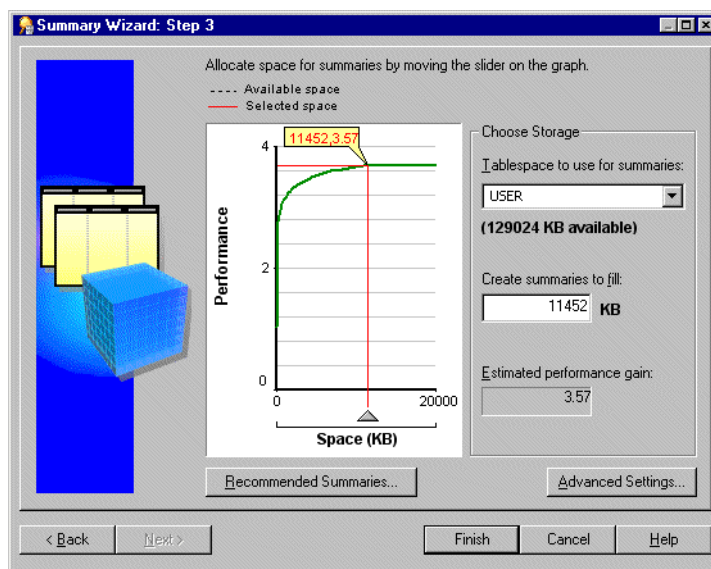
Figure 13–3 Summary Wizard: Step 2 dialog



Note: If some folders cannot be analyzed Discoverer displays the "Not Analyzed dialog".

6. When analysis is complete click Next to allocate space for summaries.

Figure 13–4 Summary Wizard: Step 3 dialog



The graph plots the expected performance gain from allocating a certain amount of space for summary folders.

The information displayed here is calculated during folder analysis (see previous step). If you make changes using any of the tabs in the Change Default Settings dialog Discoverer might recalculate the graph.

For more information about settings see ["Summary Wizard \(ASM\): Change default settings: List of dialog tabs"](#).

7. Select the tablespace in which to store summary data in the **Tablespace to use for summaries** list box.

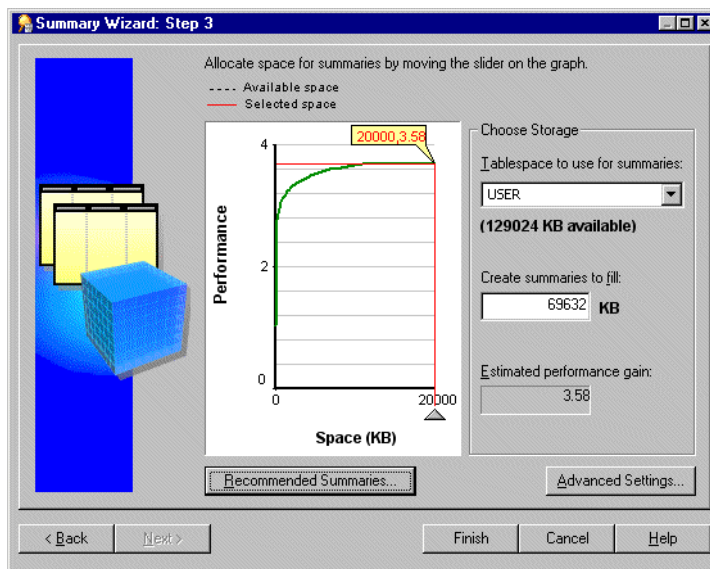
Note: We recommend you place summary data in a separate tablespace specifically intended for it. If such a tablespace does not exist, we strongly recommend you do not use the SYSTEM or TEMP tablespaces. For more information, ask your database administrator.

8. Specify the amount of space to allocate for summary data in one of the following ways:

- click the graph area and drag the pointer/red line to select the space you want to allocate for summaries
- specify a figure in the **Create summaries to fill** field

Note: The value beneath the **Tablespace to use for summaries** field can be less than the value specified in the **Create summaries to fill** field. This does not matter if you have set your tablespace to autoextend. With your tablespace set to autoextend the extra space needed will be added automatically to the database. If your tablespace is not set to autoextend the value **Space (KB)** must be less than the available space.

Figure 13–5 Summary Wizard: Step 3



9. (optional) To view the summary folders that ASM will create/remove for you, click the Recommended Summaries button.

For more information about recommended summaries, see the "[Recommended Summaries dialog](#)".

10. (optional) To display the Change default settings dialog, click the Advanced Settings button.

For more information about advanced settings, see ["Summary Wizard \(ASM\): Change default settings: List of dialog tabs"](#).

11. Click Finish to generate summary folders based on the current settings.

These settings include those made at the Recommended Summaries dialog or the Change Default Settings dialog.

Notes

- To view all the summary folders in the current EUL, display the ["Workarea: Summaries tab"](#).

How to run ASM after bulk load using the Load Wizard

When you use the Load Wizard to load a business area into the current EUL, you can choose whether to create a set of summary folders for this new business area. If you take this option then suitable summaries will be created after bulk load.

To run ASM after bulk load using the Load Wizard:

1. Choose Insert | Business Area | From Database to start the Load Wizard (for more information about using the Load Wizard, see [Chapter 4, "What is the Load Wizard?"](#)).
2. In step 4 of the Load Wizard click the option **Summaries based on folders that are created**.

For more information, see ["Load Wizard: Step 4 dialog"](#).

Notes

- The summary folders created during bulk load of a business area are derived from analyzing the tables and using the default summary policy.

For more information about the ASM policy, see ["What is the ASM policy?"](#)

- When database tables have just been loaded in the bulk load process, query statistics will not be available. Where Discoverer has been in use for a while, query statistics will have been gathered by Discoverer. Where query statistics are available they will be used by ASM to create more suitable summary folders.
- You do not need to make any changes to summary policy settings for a bulk load ASM process. The default settings which are used should be adequate. If changes are made however, these settings then become the defaults.

How to run ASM using the command line interface

To run ASM using the command line interface:

1. From the Start menu choose Run.
2. Type in the appropriate command.

For more information about the command line interface, see [Chapter 21, "What is the Oracle Discoverer command line interface?"](#). For more information about ASM commands and command modifiers see and [Chapter 21, "/asm"](#).

How to run ASM using a batch file and the operating system scheduler

You can run ASM through the batch file/scheduler facility provided by your operating system. This way you specify when you want ASM to run including the scheduled intervals when you want to repeat the process.

By using the command line syntax within a batch file the process can be run automatically overnight or on a weekend. This enables the system to maintain itself.

Before you can run ASM from a batch file you need to do two things:

1. Create a text file in a text editor (e.g. Notepad).
2. Using the correct command line syntax, enter the command line details as text into the batch file.

For more information about ASM command line syntax, see [Chapter 21, "/asm"](#).

3. Save the file as a .bat file (e.g. asmsched.bat).
4. Use the correct operating system commands to schedule the batch file.

To learn how to schedule a batch file see your operating system documentation or help.

How to configure the database for summary folders

The summary management feature in Discoverer uses native features in the Oracle database management system (DBMS), and is therefore only available when running against the Oracle database. This feature uses the same highly scalable and reliable processing procedures as the workbook scheduling capability and the setup for both features is similar. These procedures use standard packages in the DBMS called DBMS_JOB.

To enable the processing procedures for summary management in Discoverer you can check the following tasks:

- ["How to confirm that DBMS_JOB is installed for summary management"](#)
- ["How to use SQL*Plus to grant the privileges required to create summary folders"](#)
- ["How to determine and reset tablespace quotas"](#)
- ["How to check object/schema name"](#)
- ["How to set the start time for summary processing"](#)

How to confirm that DBMS_JOB is installed for summary management

To confirm that DBMS_JOB is installed for summary management:

1. Start SQL*Plus (if it is not already running) and connect as the database administrator.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT dba_user/dba_pw@database;
```

Where `dba_user` is the database administrator and `dba_pw` is the database administrator password.

2. Type the following at the command prompt:

```
SQL> select * from all_objects where object_name='DBMS_JOB' and object_type = 'PACKAGE';
```

If the statement returns no rows, use your database administrator SVRMGRL (Oracle 8.0) to create the necessary packages.

To install DBMS_JOB and create the necessary packages for summary management, for Oracle9i databases:

1. Start SQL*Plus (if it is not already running) and connect as the SYS user, or a user to which the sysdba privilege has been granted.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT sys/sys_pw@database AS SYSDBA;
```

Where `sys` is the SYS user and `sys_pw` is the SYS user password.

2. Type the following at the command prompt:

```
SQL> start <ORACLE_HOME>/rdbms/admin/dbmsjob.sql;  
SQL> start <ORACLE_HOME>/rdbms/admin/prvtjob.plb;
```

To install DBMS_JOB and create the necessary packages for summary management, for Oracle databases earlier than Oracle9i:

1. From Windows choose Start | Run.
2. Type in one of the following:
 - SVRMGRL (for Oracle 8.0)
 - SVRMGR (for Oracle8i Personal Edition)
3. When in the DBA facility, type `connect internal`
4. Execute the following SQL statements:

```
SQL> start <ORACLE_HOME>/rdbms/admin/dbmsjob.sql;  
SQL> start <ORACLE_HOME>/rdbms/admin/prvtjob.plb;
```

How to use SQL*Plus to grant the privileges required to create summary folders

You can use SQL*Plus to grant the privileges required to create summary folders in the following ways:

- ["How to use SQL*Plus to manually grant the privileges required to create summary folders"](#)
- ["How to use SQL*Plus and the eulasm.sql script to grant the privileges required to create summary folders"](#)

Notes

- The <user> below is the database user for the person using Discoverer Administrator.

How to use SQL*Plus to manually grant the privileges required to create summary folders

To use SQL*Plus to manually grant the privileges required to create summary folders, for Oracle9i databases:

1. Start SQL*Plus (if it is not already running) and connect as the SYS user, or a user to which the sysdba privilege has been granted.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT sys/sys_pw@database AS SYSDBA;
```

Where `sys` is the SYS user and `sys_pw` is the SYS user password.

2. Type the following at the command prompt:

```
SQL> grant CREATE TABLE to <user>;
SQL> grant CREATE VIEW to <user>;
SQL> grant CREATE PROCEDURE to <user>;
SQL> grant CREATE ANY MATERIALIZED VIEW to <user>;
SQL> grant DROP ANY MATERIALIZED VIEW to <user>;
SQL> grant ALTER ANY MATERIALIZED VIEW to <user>;
SQL> grant GLOBAL QUERY REWRITE to <user> with admin option;
SQL> grant ANALYZE ANY to <user>;
SQL> grant SELECT ON V_$PARAMETER to <user>;
```

Note: To grant `SELECT ON V_$PARAMETER` you must log in as the SYS user. If you are unsure about the SYS user name and password, see your database administrator.

To grant the privileges needed to create summary folders, for Oracle databases earlier than Oracle9i:

1. From Windows choose Start | Run (on the database server machine).
2. Type in one of the following:
 - SVRMGRL (for Oracle 8.0)
 - SVRMGR (for Oracle8i Personal Edition)
3. When in the DBA facility, type `connect internal`
4. Execute the following SQL statements at the command prompt:

```
SQL> grant CREATE TABLE to <user>;
SQL> grant CREATE VIEW to <user>;
SQL> grant CREATE PROCEDURE to <user>;
SQL> grant CREATE ANY MATERIALIZED VIEW to <user>;
SQL> grant DROP ANY MATERIALIZED VIEW to <user>;
SQL> grant ALTER ANY MATERIALIZED VIEW to <user>;
SQL> grant GLOBAL QUERY REWRITE to <user> with admin option;
SQL> grant ANALYZE ANY to <user>;
SQL> grant SELECT ON V_$PARAMETER to <user>;
```

Note: To grant SELECT ON V_\$PARAMETER you must log in as the SYS user. If you are unsure about the SYS user name and password, see your database administrator.

How to use SQL*Plus and the eulasm.sql script to grant the privileges required to create summary folders

To use SQL*Plus and the eulasm.sql script to grant the privileges required to create summary folders:

1. Start SQL*Plus (if it is not already running) and connect as the database administrator.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT dba_user/dba_pw@database;
```

Where dba_user is the database administrator and dba_pw is the database administrator password.

2. Type the following at the command prompt:

```
SQL> @' <ORACLE_HOME>\discoverer\util\eulasm.sql'
```

3. When the script prompts you, enter the database user to which the script is to grant the privileges.

```
ENTER value for username: <username>
```

Note: To grant the privilege SELECT ON V_\$PARAMETER you must log in again as the SYS user and manually execute the following commands. If you are unsure about the SYS user name and password, see your database administrator.

4. Start SQL*Plus (if it is not already running) and connect as the SYS user, or a user to which the sysdba privilege has been granted.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT sys/sys_pw@database AS SYSDBA;
```

Where sys is the SYS user and sys_pw is the SYS user password.

5. Type the following at the command prompt:

```
SQL> grant SELECT ON V_$PARAMETER to <user>;
```

How to determine and reset tablespace quotas

A database user must have enough quota in their default tablespace to create summary tables. The following tasks enable you to determine and tablespace quotas, if necessary.

To determine tablespace quotas, for Oracle9i databases:

1. Start SQL*Plus (if it is not already running) and connect as the SYS user, or a user to which the sysdba privilege has been granted.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT sys/sys_pw@database AS SYSDBA;
```

Where sys is the SYS user and sys_pw is the SYS user password.

2. Type the following at the command prompt:

```
SQL> select * from dba_ts_quotas where username = <user>;
```

where <user> is the userid of the person using Discoverer Administrator.

To determine tablespace quotas, for Oracle databases earlier than Oracle9i:

1. From Windows choose Start | Run.
2. Type in one of the following:
 - SVRMGRL (for Oracle 8.0)
 - SVRMGR (for Oracle8i Personal Edition)
3. When in the DBA facility, type `connect internal`
4. Execute the following SQL statement:

```
SQL> select * from dba_ts_quotas where username = <user>;
```

where <user> is the userid of the person using Discoverer Administrator.

To reset tablespace quotas:

1. Reset the tablespace quotas by executing the following SQL statement:

```
SQL> alter user <user> quota <n> on <tablespace>;
```

where <user> is the userid of the person using Discoverer Administrator

where <n> is the quota in K(ilobytes) or M(egabytes) or Unlimited

where <tablespace> is the default tablespace name e.g. USERS

How to check object/schema name

A user must not have an object in their schema with the same name as their user name. This task shows you how to look for any objects in your schema that have the same name as your database user name.

To check whether there are any objects in your schema with the same name as your user name, do the following:

1. Start SQL*Plus (if it is not already running) and connect as the database user.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT jchan/tiger@database;
```

Where jchan is the database user and tiger is the database user password.

2. Type the following at the command prompt:

```
SQL> select object_name from user_objects where object_name = <user>;
```

where <user> is the same as the login used to connect to SQL*Plus.

How to set the start time for summary processing

The summary management processes run within the database on the server, and are controlled by parameters in the initialization file of the Oracle DBMS - the INIT<SID>.ORA file.

Limiting the number of processing requests that can run simultaneously

The parameter job_queue_processes specifies the number of concurrent processes to use to process DBMS_JOB. That is, it controls the number of processing requests that can be handled simultaneously. The default value is zero which means processing requests will NOT be created. You should set it to a minimum of 2, or more if you have any other applications that use DBMS_JOB.

You need more than one job queue process, because if one job fails for any reason, it may keep getting re-submitted and thus prevent everything else in the queue from being completed. If you wish to have 10 simultaneous processing requests handled then you will need to set this to 10.

The INIT<SID>.ORA parameter `job_queue_interval` (desupported in Oracle9i (and later) Enterprise Edition databases) is the time in seconds which controls how often the job processes process pending jobs. We recommend that you update the 60 second default to at least 10 minutes (a value of 600). Note that this parameter also affects workbook scheduling.

For more information about these parameters, see "[What Oracle database features support workbook scheduling?](#)"

To enable the above parameters:

1. Locate the INIT<SID>.ORA file.

The INIT<SID>.ORA file is held in <ORACLE_HOME>\database. The default name of the file is INITORCL.ORA, where ORCL is the <SID> name.

2. Enter 2 lines into the file. For example:

```
job_queue_processes = 2
job_queue_interval = 600 (Note: this is equivalent to 10 minutes)
```

Notes

- The summary management and workbook scheduling features both use this scheduling capability within the Oracle DBMS. The interval you specify and the number of concurrent requests affect both features.

Creating summary folders manually

Creating summary folders manually

This chapter explains how you create summary folders manually using Discoverer Administrator (i.e. instead of using Automated Summary Management), and contains the following topics:

- "What is manual summary folder creation?"
- "What are the prerequisites for creating summary folders manually in Discoverer?"
- "What are summary combinations?"
- "What to consider when defining summary combinations?"
- "Guidelines for setting up summary combinations"
- "When will an expression use a summary folder?"
- "How to create summary folders based on items in the EUL"
- "How to create summary folders based on users' queries"
- "How to create summary folders based on external summary tables"
- "How to manually refresh a summary folder"
- "How to edit the properties of summary folders"
- "How to edit summary folders"
- "How to edit database storage properties of summary combinations for a summary folder"
- "How to delete summary folders"

- ["How to view the status of the summary tables/materialized views for a summary folder"](#)

What is manual summary folder creation?

Manual summary folder creation is the process of creating summary folders yourself, instead of using Discoverer's Automated Summary Management (ASM) functionality (for more information, see [Chapter 13, "Managing summary folders"](#)). It is recommended that you use ASM to create summary folders. However, you might choose to create summary folders yourself, if you want to:

- manually select the combination of EUL items (e.g. when you know the items to use in the summary folder)
- use query performance statistics to choose from a selection of summary folder suggestions (based on queries that have been run)
- use a summary table or view created and/or maintained by an external application (e.g. an external summary table)

You choose whether to create summary folders using ASM or manually in the first step of the Summary Wizard. To create summary folders manually you select the option **I want to specify the summaries myself** and complete one of the following tasks:

- ["How to create summary folders based on items in the EUL"](#)
- ["How to create summary folders based on users' queries"](#)
- ["How to create summary folders based on external summary tables"](#)

For information about summary folders and how Discoverer creates and maintains them automatically see [Chapter 13, "Managing summary folders"](#).

What are the prerequisites for creating summary folders manually in Discoverer?

To create summary folders, the following requirements must be met:

- The database must support PL/SQL.
- The DBMS_JOB package must be installed for scheduling summary folder creation and refresh. For more information see [Chapter 13, "How to confirm that DBMS_JOB is installed for summary management"](#).

- The User ID that you intend to use to create the summary folders must have the following database privileges:
 - CREATE TABLE
 - CREATE VIEW
 - CREATE PROCEDURE
 - SELECT ON V_\$PARAMETER
 - CREATE/DROP/ALTER ANY MATERIALIZED VIEW (Oracle 8.1.7 (or later) Enterprise Edition databases)
 - GLOBAL QUERY REWRITE (Oracle 8.1.7 (or later) Enterprise Edition databases)

For more information, see [Chapter 13, "How to use SQL*Plus to grant the privileges required to create summary folders"](#).

- The User ID that you intend to use to create the summary folders must have sufficient quota in their default tablespace. For more information, see [Chapter 13, "How to determine and reset tablespace quotas"](#).

Notes

- If a database user was created in Discoverer 3.1 against an Oracle 8.1.7 (or later) Enterprise Edition database, it must have additional privileges granted to enable them to create summary folders (for more information, see ["What are the prerequisites for creating summary folders with ASM?"](#)).
- If you want Discoverer to use external summary tables, the EUL owner:
 - must have SELECT WITH GRANT access to the external summary tables
 - must have been granted SELECT WITH GRANT access explicitly (i.e. not via a database role)

What are summary combinations?

Summary combinations are groupings of items that make up a summary folder. A summary combination maps directly to a materialized view or summary table in the database. Discoverer creates materialized views or summary tables based on the summary combinations you create. Each summary combination defines a different way of combining two or more items in a summary folder. If a Discoverer Plus user executes a query with a combination of items that closely matches those specified in

a particular combination, the query will be run against a summary table or materialized view instead of the detail data, resulting in improved response times.

For example, you might create a summary folder against two folder items, Product Key and Product Type.

You might want the summary folder to be used only when the Product Key and Product Type items are used together.

For this example you would not add any summary combinations but accept the default combination, as follows:

Combinations	Combination 1 (default)
Product Key	selected
Product Type	selected

Alternatively, you might want the summary folder to be used for any of the following combinations:

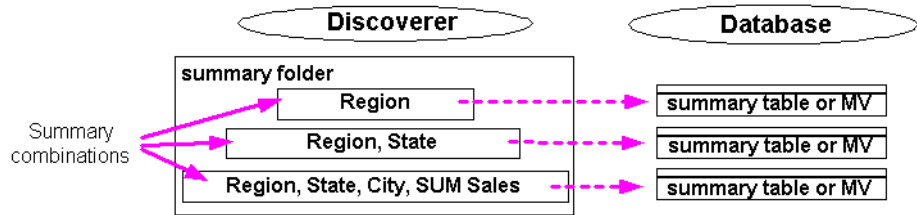
- Product Key and Product Type (Combination 1)
- Product Key (Combination 2)
- Product Type (Combination 3)

For this example you would add two summary combinations and select the check box next to the items that you want to use as follows:

Combinations	Combination 1 (default)	Combination 2	Combination 3
Product Key	selected	selected	not selected
Product Type	selected	not selected	selected

You can define as many combinations as you need for each summary folder using the Summary Wizard.

Figure 14–1 The relationship between summary combinations, summary folders and summary tables/materialized views



The diagram above illustrates that for every summary combination, Discoverer creates a materialised view or summary table in the database.

If you add multiple summary combinations, Discoverer (where possible) builds the higher level combinations (i.e. combinations with a greater number of items) using the lower level combinations (i.e. combinations with fewer items). This improves performance because:

- the detail tables do not have to be queried so often
- summary folders are refreshed more quickly

For example, a summary folder might contain two summary combinations:

- month, region and revenue
- year, region and revenue.

Discoverer aggregates the data for the revenue by month and region by accessing the detail data directly. Discoverer then uses data aggregated for the first combination to aggregate the data for the second combination, saving both processing and CPU overhead.

Note: Summary combinations are only available when Discoverer manages the refresh of a summary folder.

What to consider when defining summary combinations?

There are three things to consider when defining summary combinations:

- how much database space is required to store summary data?
- how quickly do you want a query to run?
- how often is a query run?

The key to good summary folder design is to create the most appropriate summary combinations for the pattern of system usage.

Typically you will want queries that are run most often to run the most quickly, even if this requires more database space. Similarly, it is usually desirable for queries that run less frequently to use less database space, even if this means the queries run more slowly.

When creating summary combinations, look for:

- summary combinations for popular and frequent queries

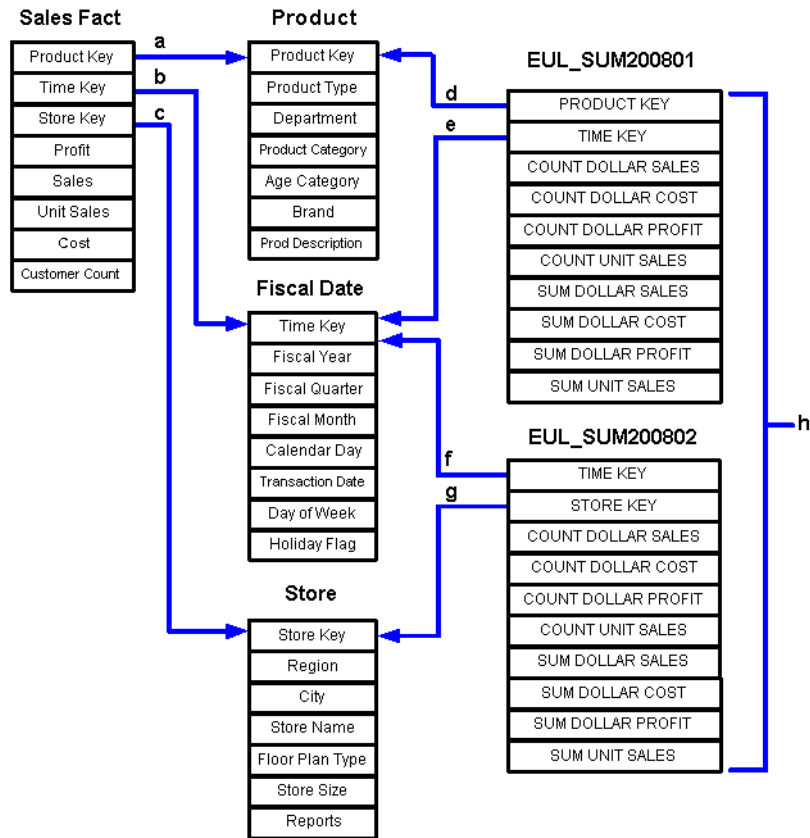
If you are creating a summary combination for a popular query, include all the items and joins used in the query. Note that such a summary combination might require considerable database space.

- summary combinations that meet ad hoc, less frequent queries

Summary combinations for a more ad hoc environment (where queries are far less predictable) are typically based on different combinations of keys in the main fact table.

For example, in the summary tables below, the columns EUL_SUM200801 and EUL_SUM200802 are mapped to appropriate items in the Sales Fact folder.

Figure 14-2 Sample summary tables and joins to fact and dimension tables



Key to the figure above:

- a. join from the Sales Fact table to Product table using the Product Key
- b. join from the Sales Fact table to Fiscal Date table, using the Time Key
- c. join from the Sales Fact table to Store table, using the Store Key
- d. join from the summary table EUL_SUM200801 to the Product table using the Product Key
- e. join from the summary table EUL_SUM200801 to the Fiscal Date table using the Time Key

- f. join from the summary table EUL_SUM200802 to the Fiscal Date table using the Time Key
- g. join from the summary table EUL_SUM200802 to the Store table using the Store Key
- h. EUL_SUM200801 and EUL_SUM200802 represent summary tables that Discoverer creates in the database

Depending on the query, Discoverer will join a summary table to one or more of the dimension tables (i.e. Store, Product, or Fiscal Date). The dimension table must be joined to the fact table by items defined in the EUL, and the summary table must contain the foreign key items in the fact folder.

For example, if a user requests Product Category, Month and SUM(Dollar Profit), Discoverer will join EUL_SUM200801 to Product and Fiscal Date to obtain results. Discoverer knows about the foreign and primary keys between the Sales Fact table and Product and Fiscal Date, and can apply them to EUL_SUM200801.

Guidelines for setting up summary combinations

We suggest that you build summary combinations in stages. Concentrate first on frequent queries, then on less frequent queries, and finally create a catch all summary combination. Guidelines for setting up summary combinations are as follows:

Query coverage	Number of items	Notes
Frequent queries	3-4	Create many summary combinations that combine only three or four axis items (dimension values). This minimizes space and maximizes performance gain.
Less frequent queries	5-7	Create less summary combinations that combine, for example five to seven axis items. More space is required but large performance gains are still realized. The more items you create in a summary combination the wider the variety of queries that is served.

Query coverage	Number of items	Notes
A catch all	all	When you choose to specify summaries yourself, create one summary combination that contains all of the items in a summary folder (the total number must be less than the number of items in the source folder(s)). Although the speed of the query results is slower, performance is still better than if the detailed tables are queried. Discoverer Administrator creates this summary combination automatically

Include the following in summary combinations:

- data point items
 - Additional data point items take up little extra room in the summary tables.
- aggregates (with the possible exception of STDEV and VARIANCE, which are rarely used)

Multiple aggregates do not require much space and can improve performance significantly. Remember that AVG requires the inclusion of SUM and COUNT, which Discoverer uses to calculate the average.

Notes

- You do not have to include items at all levels of a hierarchy in a summary combination. If you include items at the bottom level, queries that use items higher up in the hierarchy can still use the summary table. However, for this to work the summary folder must contain a foreign key to the folder that contains the hierarchy. Creating a summary combination for all levels in a hierarchy achieves only a marginal performance gain. For example, the hierarchy from Year to Quarter only saves a 4:1 aggregation because quarters are added up to years.

When will an expression use a summary folder?

An expression will use a summary folder except under specific conditions. For this reason it is useful to be able to identify when an expression will use a summary

folder. The following examples show when an expression will use a summary folder, if that summary folder contains the item SUM(Salary) and SUM(Comm):

Expression	Use summary table	Notes
SUM(Salary + Comm)	No	This expression will not use a summary folder even though SUM(Salary) and SUM(Comm) are available as summarized items. This occurs because SUM(Salary + Comm) is not relationally equal to SUM(Salary) + SUM(Comm). Because the results could be wrong, the expression will not be used.
SUM(Salary) * 12	Yes	You can query expressions such as this, and as SUM(Salary) is summarized it will use the summary folder.
NVL(SUM(Comm),0)	Yes	Expressions that use SQL functions such as NVL(SUM(Comm),0) will use a summary because SUM(Comm) is available in a summary.
SUM(NVL(Comm,0))	No	An expression such as SUM(NVL(Comm,0)) will not use a summary, because no direct match exists between a part of the expression and the available summarized item, SUM(Comm).

In essence, an expression will only use a summary folder when the expression or parts of it and the summarized expression are relationally equal.

How to create summary folders based on items in the EUL

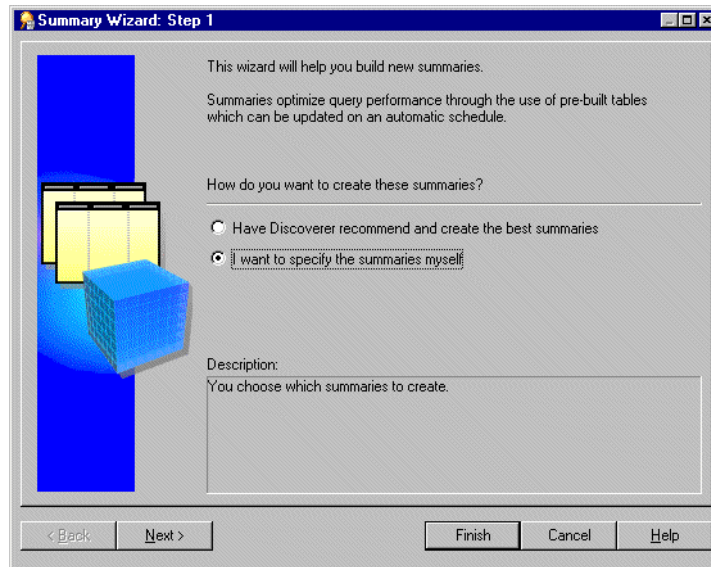
Use this option to manually select combinations of EUL items that you want to include in a summary folder.

You might select this option if, for example:

- you have switched off the **Collect Query Statistics** privilege (for more information, see [Chapter 6, "How to specify the tasks a user or role \(responsibility\) can perform"](#))
- you want to manually select the combinations of EUL items that make up a summary folder

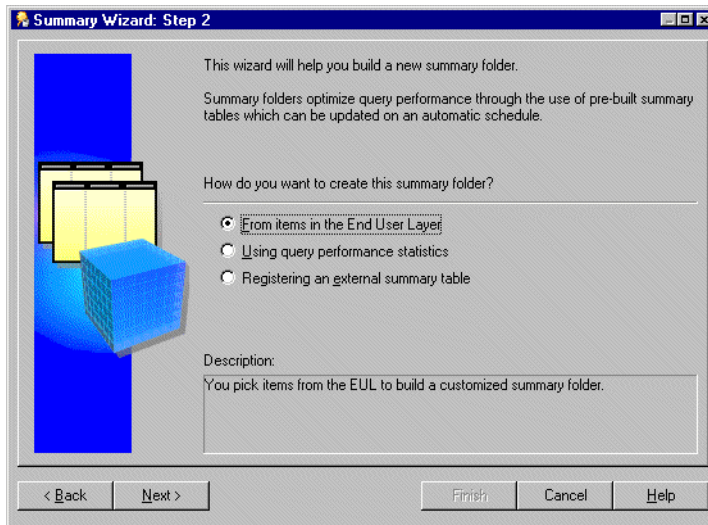
To create summary folders based on items in the EUL.

1. Select Insert | Summary to display "[Summary Wizard: Step 1 dialog](#)".

Figure 14–3 Summary Wizard: Step 1 dialog

2. Select the **I want to specify the summaries myself** radio button and click Next to display "Summary Wizard: Step 2 dialog".

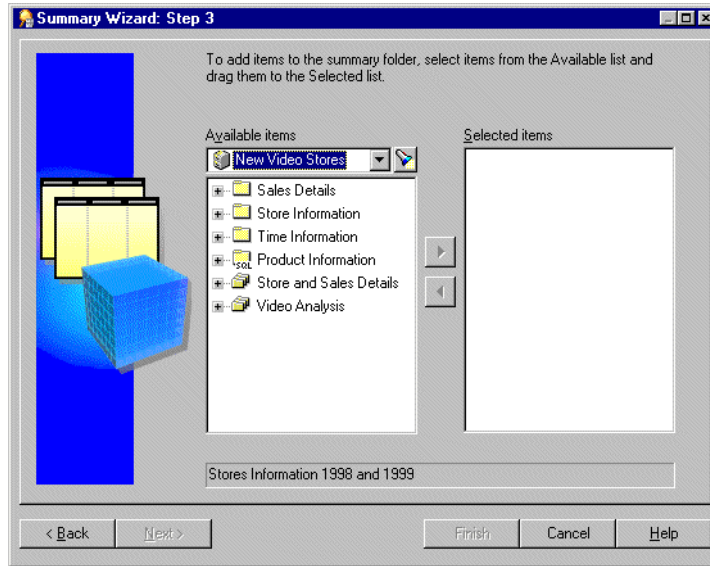
Figure 14–4 Summary Wizard: Step 2 dialog



3. Select **From items in the End User Layer** to create a summary folder.

This option is only available if the summary folders feature is enabled. For more information, see [Chapter 13, "How to configure the database for summary folders"](#).

4. Click Next to display the "[Summary Wizard: Step 3](#)".

Figure 14–5 Summary Wizard: Step 3 dialog

5. Move the items that you want to include in the new summary folder from the **Available items** list to the **Selected items** list.

You can select more than one item at a time by holding down the Ctrl key and clicking another item.

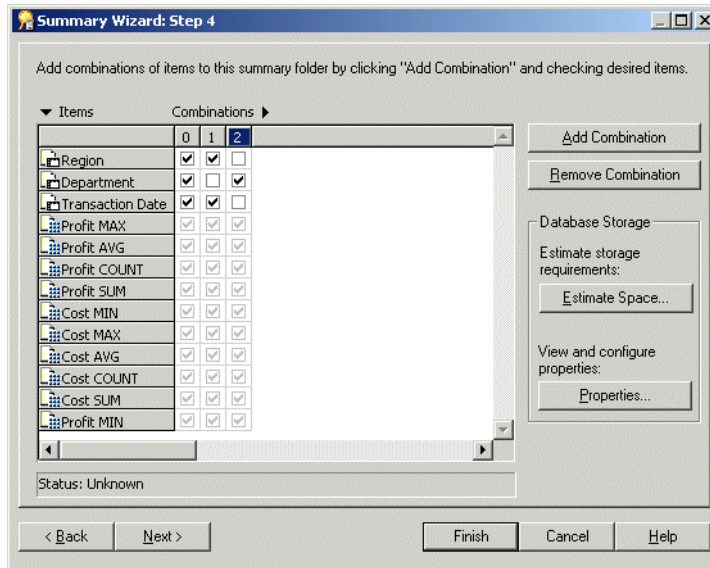
Remember to include:

- all aggregate functions for each data point item - for more information, see ["Guidelines for setting up summary combinations"](#).
- items from complex folders (where necessary) - for more information, see [Chapter 15, "What are the conditions for query rewrite by Discoverer?"](#).
- derived items (where necessary) - for more information, see [Chapter 15, "What are the conditions for query rewrite by Discoverer?"](#).

Note: You can select any items and math functions. However, if you select items from different folders, a join must already exist between the folders.

- Click Next to display the "Summary Wizard: Step 4" to define the summary combinations in the new summary folder.

Figure 14–6 Summary Wizard: Step 4 dialog



The Summary Wizard: Step 4 dialog enables you to define the summary combinations in the new summary folder.

By default, all the items you selected in the Summary Wizard: Step 3 are included in the first summary combination (in column 0).

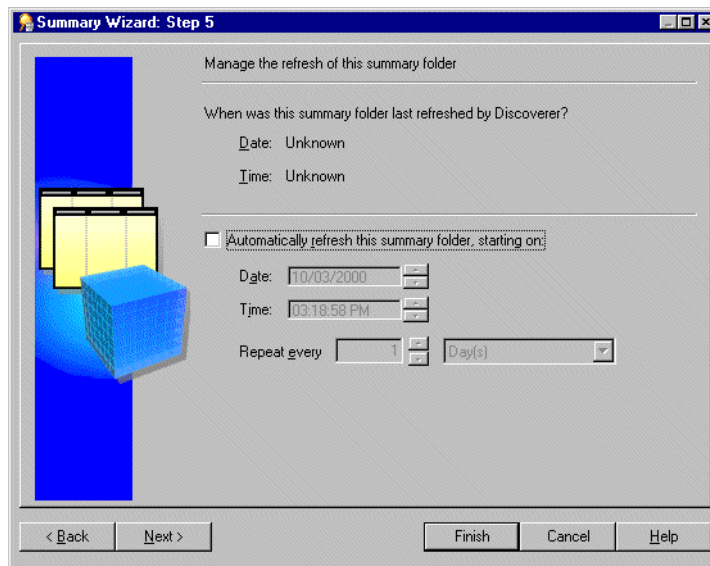
- Click Add Combination to add a new summary combination.
The summary combination appears in a new numbered column.
- Select the relevant check boxes to include items in the summary combination.
- Add as many summary combinations as necessary

For more information, see ["What are summary combinations?"](#)

Hints:

- If you are not sure whether the performance gains offered by using the specified summary combinations are outweighed by the amount of tablespace they occupy, click Estimate Space.
 - You can view and edit database storage properties for a selected summary combination by clicking Properties. For more information, see "[How to edit database storage properties of summary combinations for a summary folder](#)".
 - To remove an unwanted summary combination, select the relevant column number and click Remove Combination.
10. Click Next to display the "[Summary Wizard: Step 5](#)" to specify a refresh schedule for the summary folder.

Figure 14–7 Summary Wizard: Step 5 dialog



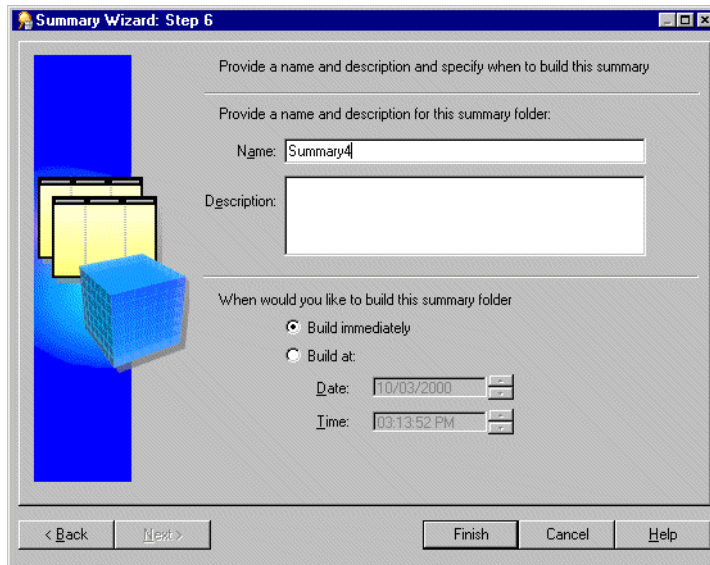
11. Select the **Automatically refresh this summary folder** check box to specify the date, time and frequency that Discoverer will automatically refresh this summary folder.

Hint: Do not select this check box if the data is static and will not change, or if you want to refresh the summary folder manually. For more information about manually refreshing summary folders, see "[How to manually refresh a summary folder](#)".

12. Set the date and time you want Discoverer to start the first refresh.
13. Set the **Repeat every** fields for the refresh interval you want.

The refresh period you specify here is the period of time that will elapse before Discoverer refreshes and updates the data. This refresh pattern will continue until you change the settings.
14. Click Next to display "Summary Wizard: Step 6".

Figure 14–8 Summary Wizard: Step 6 dialog



15. Specify a name and description for the summary folder.
16. Specify when you want to build this summary folder as follows:
 - select the **Build immediately** radio button if you have smaller summary tables, or if you want to build the summary tables immediately.
 - Select the **Build at** radio button if you have larger summary tables that are best built at off-peak hours. Enter the time and date you want to build the summary tables.

17. Click Finish.

When Discoverer builds the summary folder, it creates:

- a summary folder and summary tables (Oracle Standard Edition databases)
- a summary folder and materialized views (Oracle 8.16 databases or later)

The build process generates the summary data and marks the summary table/materialized view as Ready to use.

When the process completes Discoverer displays the new summary folder in the "[Workarea: Summaries tab](#)".

How to create summary folders based on users' queries

Query performance statistics are automatically generated when the **Collect Query Statistics** privilege is switched on for users (for more information, see [Chapter 6, "How to specify the tasks a user or role \(responsibility\) can perform"](#)).

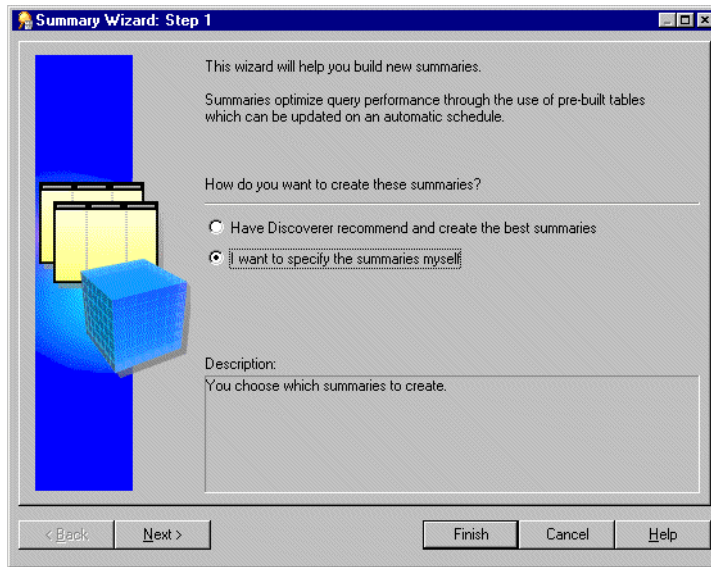
You can create a new summary folder based on query performance statistics rather than choosing the items yourself. Discoverer suggests the summary folder items for you based on the query performance statistics that are generated from Discoverer end user queries.

You might select this option if you know that you want to create one or more summary folders based upon specific queries and you do not necessarily want Discoverer to create any other summary folders.

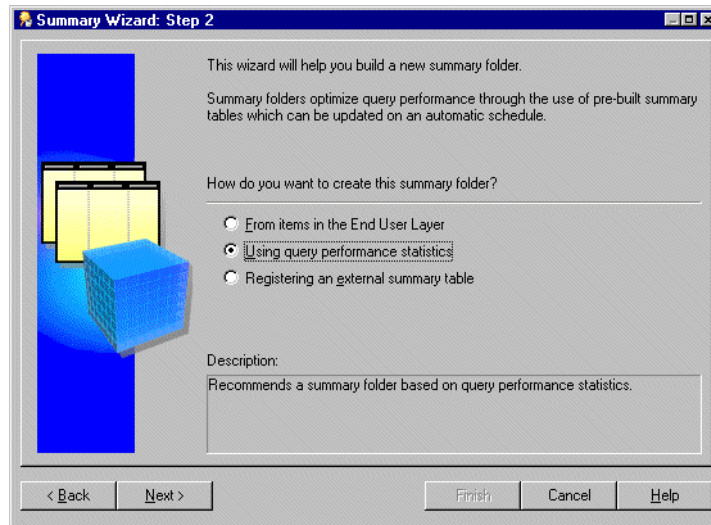
To create summary folders based on query performance statistics:

1. Choose Insert | Summary to display "[Summary Wizard: Step 1 dialog](#)".

Figure 14–9 Summary Wizard: Step 1 dialog



2. Select the **I want to specify the summaries myself** radio button and click Next to display "Summary Wizard: Step 2 dialog".

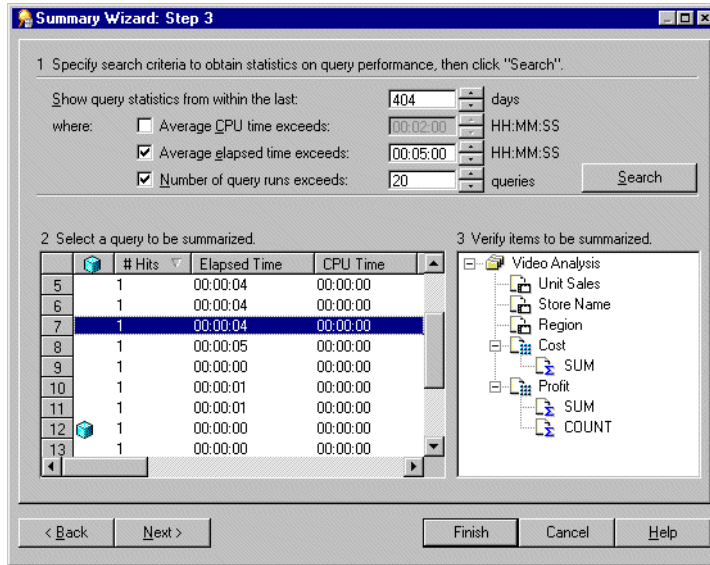
Figure 14–10 Summary Wizard: Step 2 dialog

3. Select the **Using query performance statistics** option.

This option creates a summary table or materialized view. It is only available if the summary management feature is enabled. For more information see [Chapter 13, "How to configure the database for summary folders"](#).

4. Click Next to display the "Summary Wizard: Step 3".

Figure 14–11 Summary Wizard: Step 3 dialog



The Summary Wizard: Step 3 dialog is divided into three sections as follows:

Section number	Purpose
Section 1	Specify search criteria to obtain statistics on query performance. This section enables you to specify search criteria to obtain statistics on query performance.
Section 2	Select a query to be summarized. This section shows queries that meet the search criteria.
Section 3	Verify items to be summarized. This section shows a selected query's folders, joins and items.

- Specify the values in Section 1 that you want to use to search for previously run queries.

- Click Search.

If the search time is significant, Discoverer displays a progress bar.

All the queries that match the threshold values in Section 1 are displayed in Section 2. To narrow or expand this list further, re-specify the threshold values.

If a query in the list uses items that are already summarized, a cube icon appears beside the query.

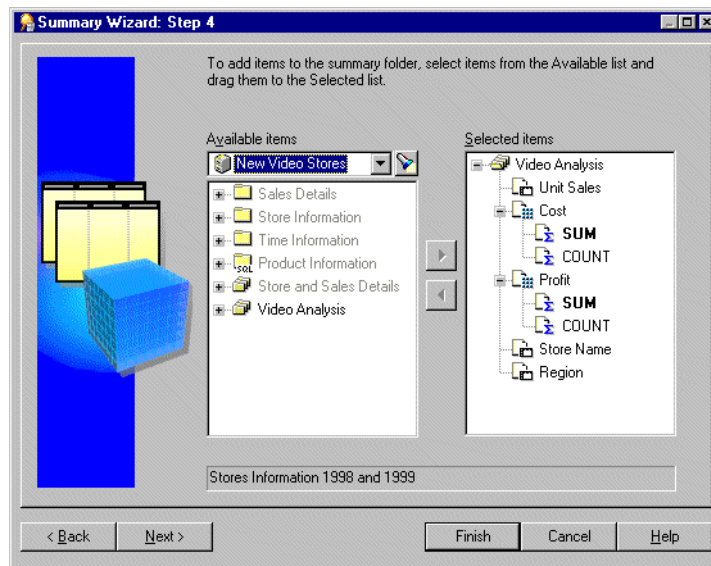
To sort the display order of items in a column in Section 2, click the relevant column heading.

7. Select the row that represents the query you want to summarize from the list in Section 2.

The query's folders, joins, and items appear in Section 3.

8. Click Next to display the "Summary Wizard: Step 4".

Figure 14–12 Summary Wizard: Step 4 dialog



The Summary Wizard: Step 4 dialog enables you to select items to include in the summary folder. By default, the **Selected items** list contains the items from the query you selected on the previous page of the Summary Wizard.

9. Move the items that you want to include in the new summary folder from the **Available items** list to the **Selected items** list.

You can select more than one item at a time by holding down the Ctrl key and clicking another item.

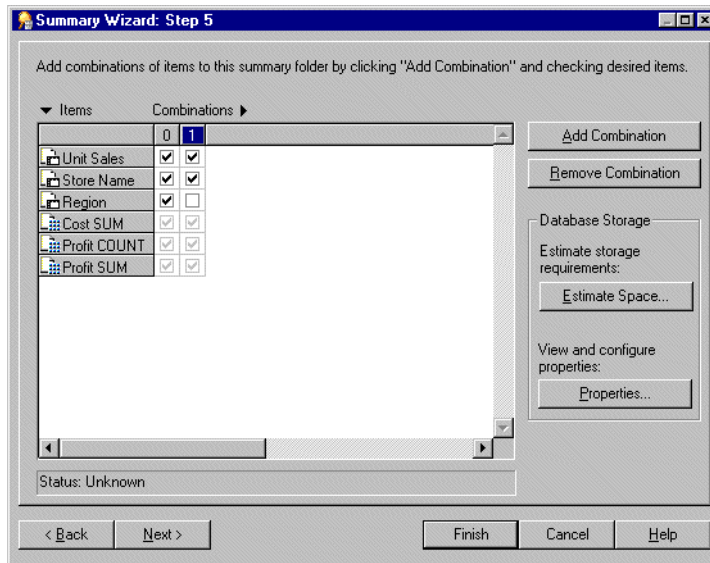
Remember to include:

- all aggregate functions for each data point item (for more information, see ["Guidelines for setting up summary combinations"](#))
- items from complex folders, where necessary (for more information, see [Chapter 15, "What are the conditions for query rewrite by Discoverer?"](#))
- derived items, where necessary (for more information, see [Chapter 15, "What are the conditions for query rewrite by Discoverer?"](#))

Note: You can select any items and math functions. However, if you select items from different folders, a join must already exist between the folders.

10. Click Next to display the ["Summary Wizard: Step 5"](#).

Figure 14–13 Summary Wizard: Step 5 dialog



The Summary Wizard: Step 5 dialog enables you to define the summary combinations in the new summary folder.

By default, all the items you selected in Summary Wizard: Step 4 are included in the first summary combination (in column 0).

11. Click Add Combination to add a new summary combination.

The summary combination appears in the new numbered column.

12. Select the relevant check boxes to include items in the new summary combination.

13. Add as many summary combination as necessary.

For more information, see "[What are summary combinations?](#)".

14. Click Estimate Space to help you decide whether the performance gains offered by using the specified summary combinations are outweighed by the amount of tablespace they occupy.

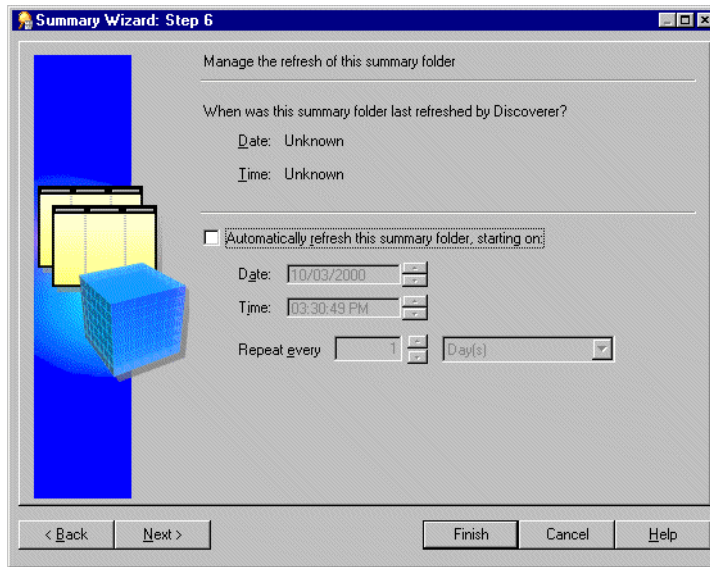
15. Click OK.

Note: You can view and edit database storage properties for a selected Summary Combination by clicking Properties. For more information, see "[How to edit database storage properties of summary combinations for a summary folder](#)".

Hint: To remove an unwanted summary combination, select the relevant column number and click Remove Combination.

16. Click Next to display the "[Summary Wizard: Step 6](#)" to specify a refresh schedule for the summary folder.

Figure 14–14 Summary Wizard: Step 6 dialog



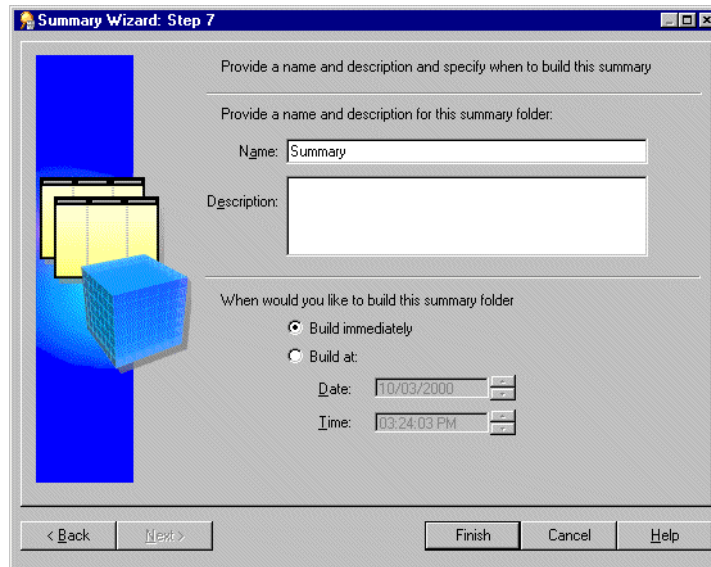
17. Select the **Automatically refresh this summary folder** check box to specify the date, time and frequency of automatic refresh for this summary.

Hint: Do not select the check box if the data is static and will not change, or if you want to refresh the summary folder manually. For more information about manually refreshing summary folders, see "[How to manually refresh a summary folder](#)".

18. Set the **Date** and **Time** you want Discoverer to start the first refresh.
19. Set the **Repeat every** fields for the refresh interval you want.

The refresh period you specify here is the period of time that will elapse before Discoverer refreshes and updates the data. This refresh pattern will continue until you change the specification.

20. Click Next to display the "[Summary Wizard: Step 7](#)".

Figure 14–15 Summary Wizard: Step 7 dialog

21. Specify a name and description for the summary folder.
22. Specify when you want to build this summary folder.
23. Click Finish.

When Discoverer builds the summary folder, it creates:

- a summary folder and summary tables (Oracle Standard Edition databases)
- a summary folder and materialized views (Oracle 8.1.7 or later Enterprise Edition databases)

The build process generates the summary data and marks the summary table/materialized view as 'Ready to use'.

When the process is complete Discoverer displays the new summary folder in the "[Workarea: Summaries tab](#)".

Notes

The business area named Query Statistics that is supplied with Discoverer includes a workbook that analyzes the following:

- query usage

- the items most frequently used in queries
- the folders containing the items
- query execution times

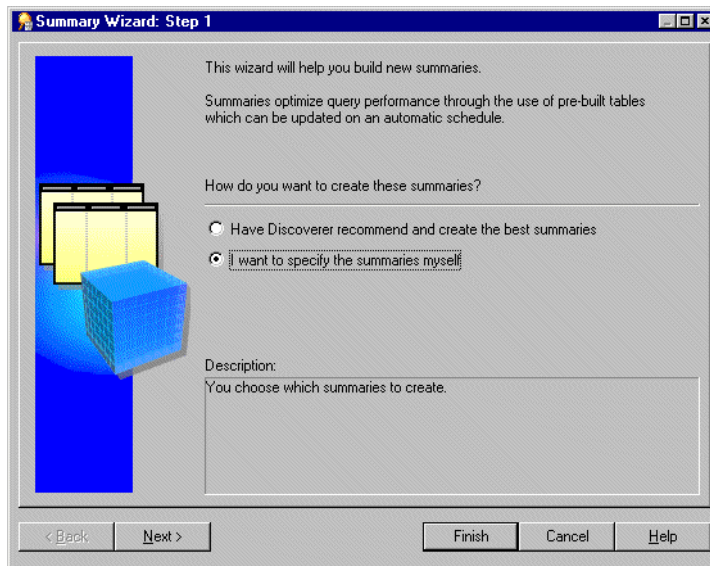
How to create summary folders based on external summary tables

This section describes how to create a new summary folder based on summary tables created by an application other than Discoverer. Summary tables created by an application outside Discoverer are called external summary tables. Note that this task also applies to creating summary folders based on external views.

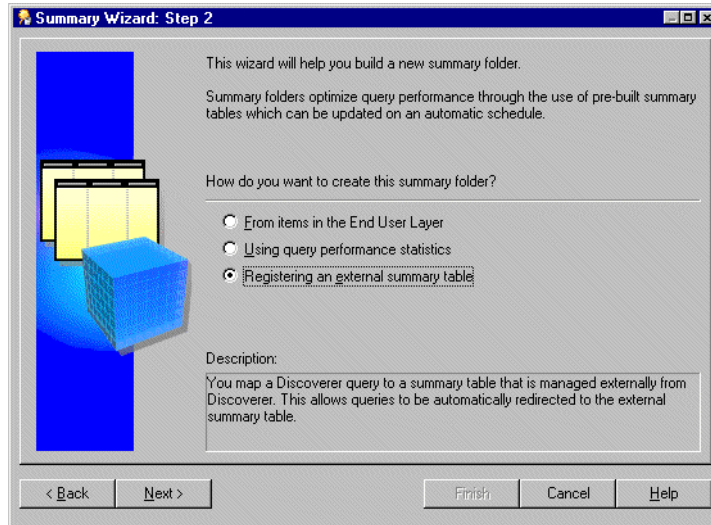
To create summary folders based on external summary tables:

1. Choose Insert | Summary to display "Summary Wizard: Step 1 dialog".

Figure 14–16 Summary Wizard: Step 1 dialog



2. Select the radio button **I want to specify the summaries myself** and click Next to display "Summary Wizard: Step 2 dialog".

Figure 14–17 Summary Wizard: Step 2 dialog

3. Select the **Registering an external summary table** radio button.

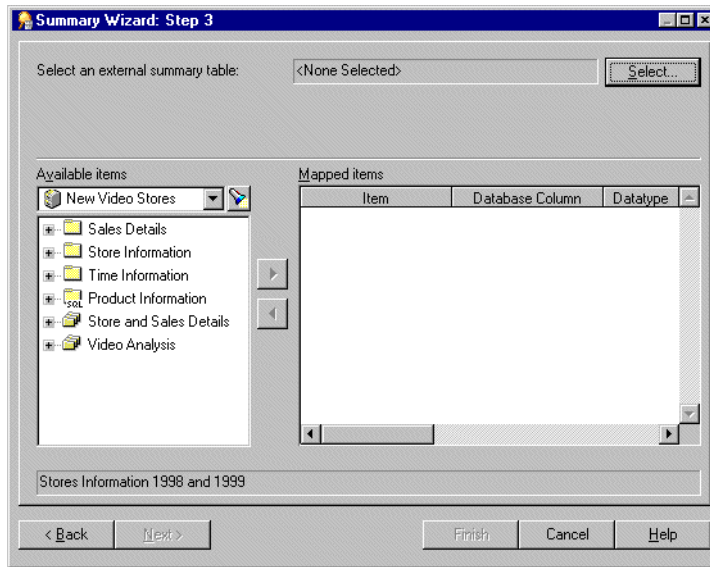
The result of completing this task is that the database will create a materialized view from the summary table created by the external application.

Note that Discoverer will continue to create summary tables under the following conditions:

- If you run Discoverer against an Oracle Standard Edition database.
For more information, see [Chapter 15, "What is different about summary folders that are based on external summary tables?"](#).
- If you map an external view to EUL items against an Oracle 8.1.7 (or later) Enterprise Edition database.
For more information, see [Chapter 15, "What is different between mapping external summary tables and views to EUL items, with Oracle 8.1.7 \(or later\) Enterprise Edition databases?"](#).

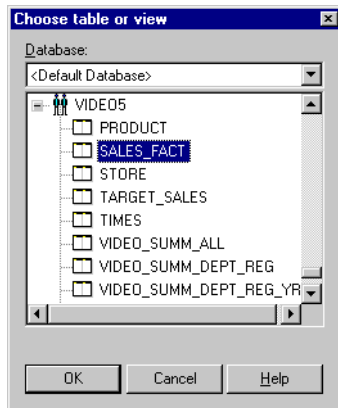
4. Click Next to display the "Summary Wizard: Step 3 dialog".

Figure 14–18 Summary Wizard: Step 3 dialog



5. Click Select to display the "Choose user or table/view dialog".

Figure 14–19 Choose table or view dialog

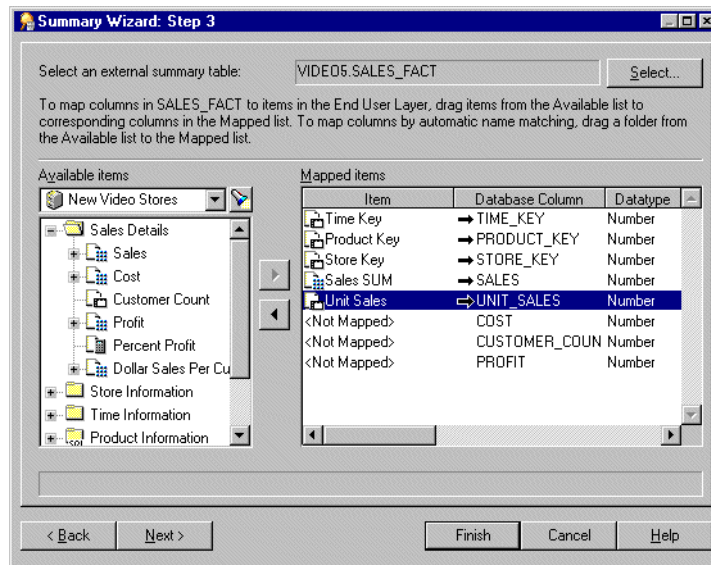


6. Select the database (from the drop down list) that contains the external summary table that you want to register.

Note: When connected to an Oracle 8.1.7 (or later) Enterprise Edition database, Oracle prevents a user from registering an external summary over a database link. This is because the database does not allow a materialized view to be created over a database link. However, this may be achieved by creating a view in the database that the EUL is in and referencing the external summary in the view. This view may then be registered within Discoverer as an external summary.

7. Select the external summary table that you want to register with Discoverer Administrator.
8. Click OK to display all the database columns found in the external summary table in the mapped items list.

Figure 14–20 Summary Wizard: Step 3 dialog



You now map each database column in the external summary table to a corresponding item in the EUL.

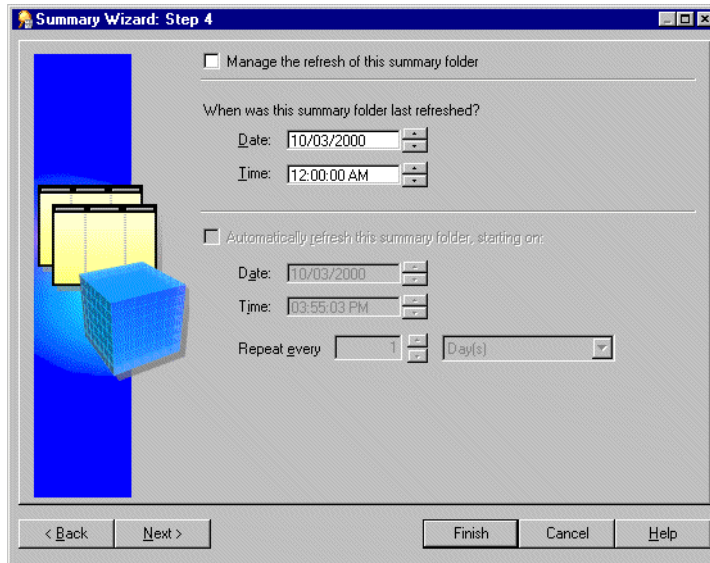
9. For each database column, drag the corresponding item from the **Available items** list onto the database column in the **Mapped items** list

Hint: If several items from the same folder correspond to columns in the external summary table, you can drag and drop the folder onto an item in the **Mapped items** list. Discoverer Administrator attempts to map the correct items to the database columns using the item names. Note that you will have to map items to any columns for which Discoverer Administrator cannot identify corresponding items.

Hint: To remove the mapping between a database column in the external summary table and an item in the EUL, select the relevant row in the **Mapped items** list and click the left arrow button.

10. Click Next to display the "Summary Wizard: Step 4" to specify a refresh schedule for the summary folder.

Figure 14–21 Summary Wizard: Step 4 dialog



11. Select the **Manage the refresh of this summary** check box if you want Discoverer to manage the refresh of this external summary table.
12. Select the **Automatically refresh this summary folder** check box to specify the date, time and frequency of automatic refresh for this summary.

Hint: Do not select the check box if the data is static and will not change, or if you want to refresh the summary folder manually. For more information about

manually refreshing summary folders, see ["How to manually refresh a summary folder"](#).

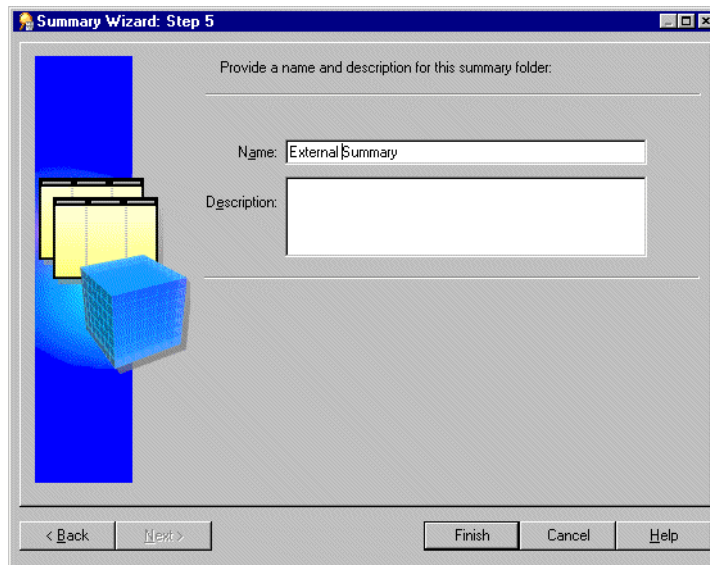
13. Set the Date and Time you want Discoverer to start the first refresh.

14. Set the **Repeat every** fields for the refresh interval you want.

The refresh period you specify here is the period of time that will elapse before Discoverer refreshes and updates the data. This refresh pattern will continue until you change the specification.

15. Click Next to display ["Summary Wizard: Step 5"](#).

Figure 14–22 Summary Wizard: Step 5 dialog



16. Specify a name and description for the summary folder

17. Click Finish to create the summary folder in the business area and register the external summary table with Discoverer.

When the process is complete, Discoverer displays the new summary folder in the ["Workarea: Summaries tab"](#).

Notes

- Summary combinations are only available when Discoverer manages the refresh of a summary folder. When Discoverer uses external summary tables, summary combinations are not available.

How to manually refresh a summary folder

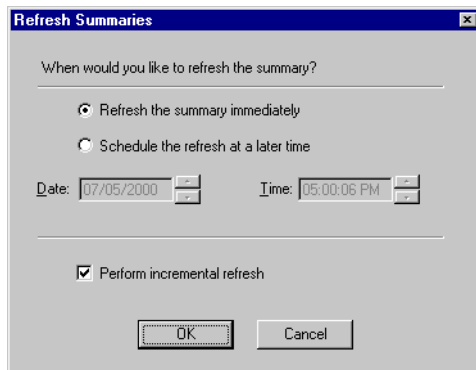
This section describes how you can refresh a summary folder. You might need to refresh a summary folder if the database has changed.

To manually refresh a summary folder:

1. Select the summary folder that you want to refresh in the "Workarea: Summaries tab".
2. Choose Tools | Refresh Summaries to display the "Refresh Summaries dialog".

Note: Discoverer does not display the Refresh Summaries dialog for externally managed summary folders.

Figure 14–23 Refresh Summaries dialog



3. Specify when you want to refresh the selected summary folder as follows:
 - select the **Refresh the summary immediately** radio button if you want to refresh the summary folder immediately
 - select **Schedule the refresh at a later time** radio button if you want to refresh the summary folder at a specified time
4. If you selected **Schedule the refresh at a later time**, specify the date and time when you want the refresh to begin.

5. To perform an incremental refresh, select the check box.

You might want to perform an incremental refresh when the detail data in the database tables has changed little since the last refresh. Performing an incremental refresh saves time, as it updates only those changes committed to the database since the last refresh.

For further information on the conditions required for incremental refresh, see *Oracle9i Data Warehousing Guide*.

Notes

- Sometimes you will want to refresh a summary folder when a process outside Discoverer has completed (e.g. the loading of data into a data warehouse). You can refresh a summary folder from a batch command file using the Discoverer's command line interface option (for more information, see [Chapter 21, "/refresh_summary"](#)).

For more information about refreshing summary folders, see:

- [Chapter 15, "About refresh options for Oracle 8.1.7 \(or later\) Enterprise Edition databases"](#)
- [Chapter 15, "About refreshing summary folders following import between Oracle databases"](#)

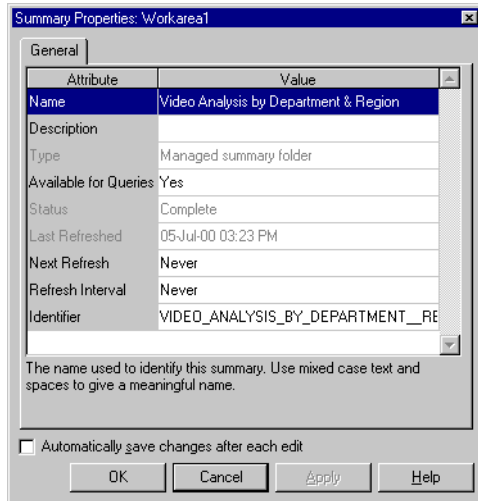
How to edit the properties of summary folders

This section describes you how to edit the properties of a summary folder.

To edit the properties of a summary folder:

1. Select one or more summary folders in the "[Workarea: Summaries tab](#)"
2. Choose Edit | Properties to display the "[Summary Properties dialog](#)".

Figure 14–24 Summary Properties dialog



Hint: You can select more than one summary folder at a time by holding down the Ctrl key and clicking another summary folder. If all the selected folders have the same value for a particular property, that value is shown. If the selected folders have different values for a particular property, no value is shown for the property. Any changes you make here are applied to all selected summary folders.

3. Make your changes as required.
4. Click OK to save the changes you have made.

How to edit summary folders

You might want to edit a summary folder to:

- change its name or description
- view or edit its properties
- refresh it
- alter its composition (e.g. change items or combinations)
- view or modify database storage properties

- investigate the composition of a broken summary folder and remove broken folders

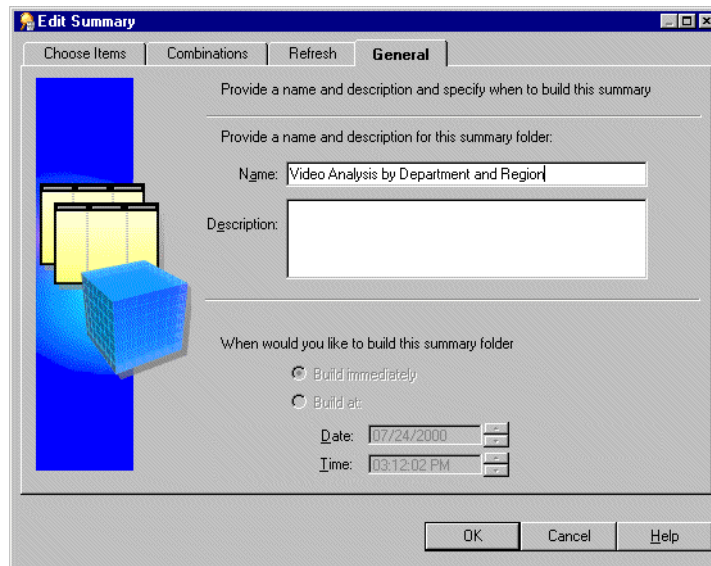
Notes

- You can edit summary folders, regardless of whether they are valid or broken.

To edit a summary folder:

1. Display the "Workarea: Summaries tab".
2. Select the + symbol next to a business area to display its available summary folders.
3. (optional) Choose View | Validate Summaries to display diagnostic summary folder information, if required.
4. Click the summary folder and choose Edit | Edit...

Figure 14–25 Edit Summary dialog: General tab



5. Edit the summary folder as required.

The Edit Summary dialog is divided into four tabs. Each tab corresponds to a step of the Summary Wizard as follows:

- ["Edit Summary dialog: Choose items tab"](#) - use this tab to specify the items in a summary folder.
- ["Edit Summary dialog: Combinations tab"](#) - use this tab to edit, add, or delete summary combinations. You can also use this tab to view and configure database storage properties of materialized views or summary tables (depending on database version).

Note: The Combinations tab is not displayed for summary folders that are based upon external summary tables.

- ["Edit Summary dialog: Refresh tab"](#) - use this tab to set the refresh and refresh interval of the summary folder.
- ["Edit Summary dialog: General tab"](#) - use this tab to edit the name, description and to view the build time of the summary folder.

6. Click OK.

Notes

- If a summary folder is broken, you can view the status of folders within the summary folder by choosing View | Validate Summaries. If Discoverer detects a problem with a folder within a summary folder, an error message is displayed beside the folder.
- If a summary folder remains broken following an edit, any modifications made in Discoverer are not written to the materialized view or summary table. Where a summary folder is valid following an edit, any modifications made in Discoverer are also written to the materialized view/summary table.

How to edit database storage properties of summary combinations for a summary folder

You can use Discoverer Administrator to control how summary combinations are stored in the database by editing the database storage properties.

Note: Database storage properties are not available for summary folders that are based on external summary tables. For more information, see [Chapter 15, "What is different about summary folders that are based on external summary tables?"](#).

To edit the database storage properties of summary combinations for a summary folder:

1. Select a summary folder from the ["Workarea: Summaries tab"](#).

2. Choose Edit | Edit... to display the Edit Summary dialog.
3. Display the ["Edit Summary dialog: Combinations tab"](#).
4. Select the summary combination with database storage properties that you want to edit.
5. Click Properties to display the Database Storage Properties dialog (see ["Database Storage Properties dialog: List of tabs"](#)).
6. Display the appropriate tab and edit the properties as required.

For more information about the Database Storage Properties dialog tabs, see:

- ["Database Storage Properties dialog: Properties tab"](#)
- ["Database Storage Properties dialog: Mappings tab"](#)
- ["Database Storage Properties dialog: Tablespaces tab"](#)
- ["Database Storage Properties dialog: Materialized Views tab"](#)

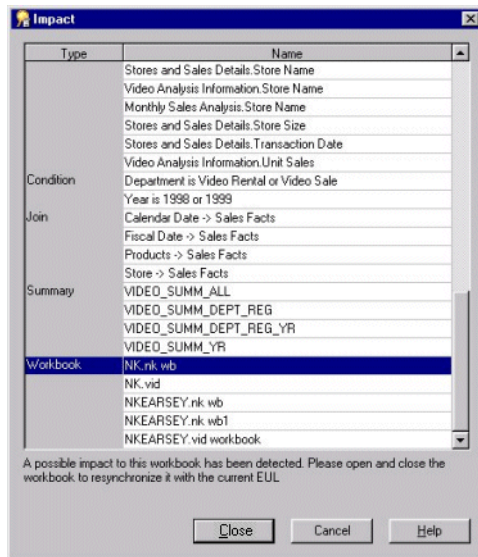
How to delete summary folders

This section describes how you can delete a summary folder. When you delete a summary folder, the underlying summary tables or materialized views are also deleted.

To delete a summary folder:

1. Select the summary folder that you want to delete from the ["Workarea: Summaries tab"](#).
Hint: You can select more than one summary folder at a time by holding down the Ctrl key and clicking another summary folder.
2. Choose Edit | Delete to display the ["Confirm Delete dialog"](#).
You can review the objects that might be affected by deleting this summary folder.
3. (optional) To see the potential impact of the deletion:
 - a. Click Impact to display the ["Impact dialog"](#).

Figure 14–26 Impact dialog



The Impact dialog enables you to review the other EUL objects that might be affected when you delete a summary folder.

Note: The Impact dialog does not show the impact on workbooks saved to the file system (i.e. in .dis files).

- b. (optional) Select a row to view text at the bottom of the list, indicating what affect the current action will have on the EUL object.
 - c. When you have finished reviewing the impact of deleting the summary folder, click Close to close the Impact dialog.
4. If you still want to delete the selected summary folder click Yes.

Discoverer Administrator deletes the selected summary folder from the EUL and drops the summary table/materialized view from the database.

How to view the status of the summary tables/materialized views for a summary folder

This section describes how you can view the status of the summary table/materialized view for a summary folder.

To view the status of the summary table/materialized view for a summary folder:

1. Select the summary folder that contains the summary table or materialized view you are interested in from the "[Workarea: Summaries tab](#)".
2. Choose Edit | Edit... to display the Edit Summary dialog
3. Display the "[Edit Summary dialog: Combinations tab](#)".
4. Select the numbered column heading for the summary combination that corresponds to the summary table materialized view you are interested in.

Discoverer displays the status of the summary table/materialized view in the status bar at the bottom of the dialog.

5. When you have finished viewing the status of the summary table/materialized view (represented by the summary combination), click OK to close the Edit Summary dialog.

Notes

- The status is not available for summary folders that are based upon external summary tables.
- To see additional diagnostic information in the "[Workarea: Summaries tab](#)" use the View | Validate Folders option. This displays any errors that exist within the folders of a summary folder.

For more information about validating folders and summary status messages, see:

- "[Summary Properties dialog](#)"
- [Chapter 5, "How to validate folders in a business area"](#)

Additional information about summary folders

Additional information about summary folders

This chapter provides additional information about Discoverer summary folders and contains the following topics:

- "What is the context and future for Discoverer's use of summary tables/materialized views?"
- "What is query rewrite?"
- "What are the conditions for query rewrite by Discoverer?"
- "About viewing the SQL and execution plan for query rewrite in Discoverer"
- "About configuring how Discoverer displays SQL in the SQL Inspector dialog"
- "Examples of execution plan (in Discoverer) using/not using a materialized view"
- "Example of the SQL (in Discoverer) where Discoverer rewrites the query"
- "Example illustrating the advantages of rewriting a query to use a summary table"
- "What characteristics differ between summary folders in Oracle Standard Edition databases and Oracle 8.1.7 (or later) Enterprise Edition databases?"
- "What is different about summary folders that are based on external summary tables?"
- "What is different between mapping external summary tables and views to EUL items, with Oracle 8.1.7 (or later) Enterprise Edition databases?"

- "About refresh options for Oracle 8.1.7 (or later) Enterprise Edition databases"
- "About refreshing summary folders following import between Oracle databases"

What is the context and future for Discoverer's use of summary tables/materialized views?

Discoverer created the concept of rewriting a query to use a summary table. The idea of creating a summary table and having the SQL automatically rewritten was patented by Oracle.

It became clear that this functionality would be useful for all database users, so Oracle moved the functionality to the database. Discoverer uses materialized views and query rewrite whenever possible and still supports its original query rewrite to Discoverer summary tables if not.

The long term direction is to work with the server query rewrite mechanism and gradually remove the Discoverer-specific mechanism.

What is query rewrite?

Discoverer uses query rewrite under the following database conditions:

- With Oracle 8.1.7 (or later) Enterprise Edition databases Discoverer sends a query to the database and the database decides whether a suitable materialized view exists for the query rather than accessing the detail data tables. If one does exist, the database rewrites the query to use the materialized view.
- With Oracle Standard Edition databases. Discoverer rewrites the query to use a suitable summary table rather than accessing the detail data tables.

With Oracle 8.1.7 (or later) Enterprise Edition databases, when mapping a view to items in the EUL, Discoverer rewrites the query to use a suitable summary table.

Query rewrite is transparent to the Discoverer end user and provides exactly the same results as queries that run against the detail tables but returns the results in far less time.

Note: Before query rewrite can be used, the option to use summary folders must be set in Discoverer Plus (for further information, see the *Oracle Application Server Discoverer Plus User's Guide*).

For more information about the rules regarding Oracle 8.1.7 (or later) Enterprise Edition database rewrite scenarios, see the *Oracle9i Data Warehousing Guide*.

What are the conditions for query rewrite by Discoverer?

Discoverer rewrites a query to use a summary table instead of the detail data when all of the following conditions are met:

- All the items specified in a query must either:
 - exist in a single summary combination
For more information, see [Chapter 14, "What are summary combinations?"](#).
 - be able to be joined to a summary table via foreign keys that exist in a summary combination
- Where derived items are used, you must include in the summary combination:
 - the derived items
 - the components used to create the derived items
For more information about derived items, see [Chapter 10, "What are derived items?"](#).
- Where items are from complex folders, create another summary folder using the same combination of items, but from the source (simple) folders.
For more information about complex folders, see [Chapter 5, "What are complex folders?"](#).
- Join paths specified in the query must match those specified in the summary combination that satisfies the query. This ensures that the summary result set data matches that in the detail data tables.

However, you can define queries using fewer joins than specified in the summary table, provided that you select the **Detail item values always exist in the master folder** radio button in the "Join Wizard: Step 2 dialog".

- The summary folder must have the **Available for Queries** property set to Yes
For more information about summary folder properties, see [Chapter 14, "How to edit the properties of summary folders"](#).
- The conditions specified on the Query Governor tab of the Options dialog in Discoverer Plus must be met.

For more information, see the *Oracle Application Server Discoverer Plus User's Guide*.

- The Discoverer end user running the query must have database SELECT access to the summary table.

For more information about the privileges required to create summary folders, see [Chapter 14, "What are the prerequisites for creating summary folders manually in Discoverer?"](#).

About viewing the SQL and execution plan for query rewrite in Discoverer

To view the SQL sent to the database server and the execution plan that the database server uses to return the results data from a query, you use the SQL Inspector dialog in Discoverer Plus. The SQL Inspector dialog displays the SQL and includes the name of the materialized view or the summary table used. For more information about the SQL Inspector dialog, see the *Oracle Application Server Discoverer Plus User's Guide*.

About configuring how Discoverer displays SQL in the SQL Inspector dialog

In OracleAS Discoverer Plus and Oracle Discoverer Desktop, end users can look at SQL being generated by Discoverer to create worksheets. The SQL that is shown in the SQL Inspector is not necessarily the same as that which is sent to the RDBMS.

Discoverer always sends SQL that contains inline views to the RDBMS. Because inline views can be difficult for end users to read, you can configure Discoverer to reformat SQL to make it easier to read. Reformatted SQL is also known as 'flattened' SQL.

To configure how Discoverer displays SQL, edit the SQLType registry setting (for more information, see ["Discoverer registry settings"](#) and ["How to edit Discoverer Administrator and Discoverer Desktop registry settings"](#)).

Examples of execution plan (in Discoverer) using/not using a materialized view

You can tell whether a query is subject to query rewrite by invoking the SQL Inspector dialog in Discoverer Plus. The table below illustrates how the server

execution plan might be displayed when used in a query for which no suitable materialized view exists. In this example the server completes a full table scan of three VIDEO5 data tables to return the result set.

A SQL statement that Discoverer displays in the SQL Inspector dialog: Plan tab

```
SELECT STATEMENT
SORT GROUP BY
TABLE ACCESS FULL VIDEO5.Sales
TABLE ACCESS FULL VIDEO5.Product
TABLE ACCESS FULL VIDEO5.Time
```

The table below illustrates how the server execution plan might be displayed when used in a query for which a suitable materialized view exists. In this example the server uses the materialized view to return the result set.

An execution plan that Discoverer displays in the SQL Inspector dialog: Plan tab

```
SELECT STATEMENT
SORT GROUP BY
TABLE ACCESS FULL NICK.EUL5_MV101510
```

The SQL statement in the table above illustrates how the server can rewrite a query to use a suitable materialized view.

The materialized view is identified in the execution plan by the table name EUL5_MV{identifier}

Example of the SQL (in Discoverer) where Discoverer rewrites the query

When Discoverer runs against an Oracle Standard Edition database, Discoverer controls query rewrite to use a suitable summary table. Discoverer displays the SQL sent to the database server in the SQL Inspector dialog: SQL tab.

The table below displays the SQL statement used for a Discoverer worksheet using items from the Video Analysis folder (for more information, see *Oracle Discoverer Administrator Tutoria*). The SQL statement shows that the summary table EUL5_SUM100750 is referenced.

A SQL statement that Discoverer Plus might display in the SQL Inspector dialog: SQL tab

```
SELECT EUL5_SUM100750,"Department", EUL5_SUM100750, "Region",
EUL5_SUM100750,"Calendar Date Year", SUM(EUL5_
SUM100750,"Profit SUM")
FROM ADMINITUTORNF806.EUL5_SUM100750 EUL5_SUM100750
GROUP BY EUL5_SUM10075."Department", EUL5_SUM10075."Region",
EUL5_SUM10075."Calendar Date Year";
```

Discoverer automatically chooses the most appropriate summary table to process the query efficiently. This action is completely transparent to the Discoverer end user.

The next table below displays the SQL statement for the same Discoverer worksheet as above, except that the end user has now drilled down from Year to Month.

The SQL statement shows that Discoverer has rewritten the first part of the query to the summary table EUL5_SUM100750 (as above). However, Discoverer has rewritten the second part of the query (the drill down) to the summary table EUL5_SUM100774.

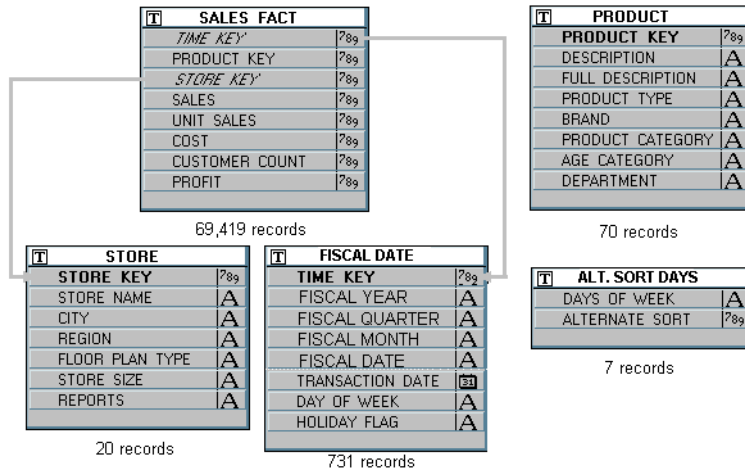
A SQL statement that Discoverer Plus might display in the SQL Inspector dialog: SQL tab following a drill down

```
SELECT EUL5_SUM100750,"Department", EUL5_SUM100750, "Region",
EUL5_SUM100750,"Calendar Date Year", SUM(EUL5_
SUM100750,"Profit SUM")
FROM ADMINITUTORNF806.EUL5_SUM100750 EUL5_SUM100750
GROUP BY EUL5_SUM100750."Department", EUL5_SUM100750."Region",
EUL5_SUM100750."Calendar Date Year";
SELECT EUL5_SUM100774,"Department", EUL5_SUM100774, "Region",
EUL5_SUM100774,"Calendar Date Month", EUL5_SUM100774,"Calendar
Date Year", SUM(EUL5_SUM100774,"Profit SUM")
FROM ADMINITUTORNF806.EUL5_SUM100774 EUL5_SUM100774
WHERE (EUL5_SUM100774."Calendar Date Year" = TO_
DATE('200001011000000','YYYYMMDDHH24MISS'))
GROUP BY EUL5_SUM100774."Department", EUL5_SUM100774."Region",
EUL5_SUM100774,"Calendar Date Month", EUL5_SUM100774."Calendar
Date Year";
```

Example illustrating the advantages of rewriting a query to use a summary table

This example consists of five tables, one of which has almost 70,000 records (for more information, see the figure below). The schema and data are taken from the tutorial data.

Figure 15–1 Example schema and data



Consider a query requiring the following items:

- Region - (from the STORE table)
- Department - (from the PRODUCT table)
- Fiscal Year - (from the FISCAL DATE table)
- SUM (Dollar_Profit) - (from the SALES FACT table)

This would require a five-table join and an aggregation of all matching rows in SALES_FACT (the table with almost 70,000 rows). Producing results for the query could take several minutes depending on the capability of the server.

On the other hand, if the query could be rewritten to use a single table that already contains the data for Region, Department, Fiscal Year, and SUM (Profit) (see the Sample summary table figure), then the query would produce an almost instantaneous response.

What characteristics differ between summary folders in Oracle Standard Edition databases and Oracle 8.1.7 (or later) Enterprise Edition databases?

Figure 15–2 Sample summary table

EUL5_SUM100801	
DEPARTMENT	A
REGION	A
YEAR	83
QUARTER	31
MONTH	31
COUNT SALES	?89
COUNT COST	?89
COUNT PROFIT	?89
COUNT UNIT SALES	?89
SUM SALES	?89
SUM COST	?89
SUM PROFIT	?89
SUM UNIT SALES	?89

The Sample summary table above stores the information needed by the query at the month level, and only has to be aggregated to the year level. Discoverer therefore uses a single table rather than aggregating from a five table join and performing a full table scan.

What characteristics differ between summary folders in Oracle Standard Edition databases and Oracle 8.1.7 (or later) Enterprise Edition databases?

A number of characteristics differ between summary folders when using different database versions and are compared in the following table:

For more information about summary folders, see [Chapter 13, "About folders and summary folders in Discoverer"](#) and [Chapter 14, "What is manual summary folder creation?"](#). The following table compares summary folders in Oracle Standard Edition databases, and Oracle 8.1.7 (or later) Enterprise Edition databases:

Question?	Oracle Standard Edition databases	Oracle 8.1.7 (or later) Enterprise Edition databases
How are summary folders stored in the database?	Stored as summary tables	Stored as materialized views or summary tables
How are summary folders refreshed?	Full refresh only	Full or incremental refresh
What kind of refresh is available?	Refresh is On Demand only	Refresh can be On Demand/On Commit

Question?	Oracle Standard Edition databases	Oracle 8.1.7 (or later) Enterprise Edition databases
How is refresh performed?	Discoverer performs the refresh	The server performs the refresh
What performs the summary rewrite?	Discoverer performs the summary rewrite	The server performs the query rewrite
What are the terms used to define summary folders?	Summary folders are defined in terms of items and folders	Summary folders are defined in terms of tables and columns
Can other applications take advantage of them?	No, only Discoverer	Yes, other applications can take advantage of materialized views

Notes

- Since materialized views are stored in the server, they are available for refresh by other client applications. For example, a materialized view created when using Discoverer can be refreshed through SQL*Plus using the supplied DBMS_MVIEW package.

What is different about summary folders that are based on external summary tables?

Discoverer creates summary folders based on:

- Discoverer summary tables or materialized views
- external summary tables

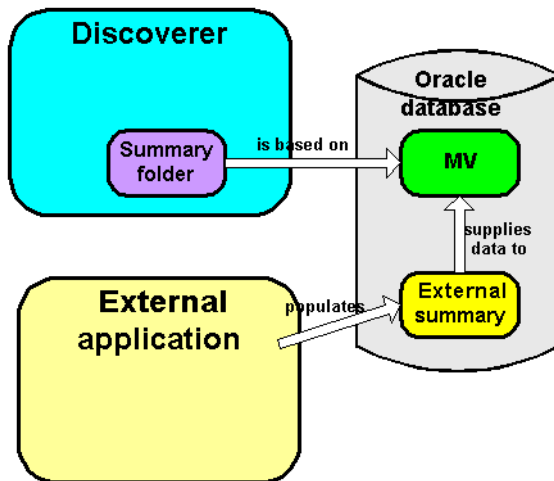
The main differences between summary folders based on Discoverer summary tables/materialized views and summary folders based on external summary tables are outlined below.

Question?	Summary folders based on Discoverer summary tables/materialized views	Summary folders based on external summary tables
How are they populated and maintained?	Automatically by Discoverer Administrator or the Oracle 8.1.7 (or later) Enterprise Edition database.	Using another application (e.g. SQL*Plus).
How are they created?	Using Discoverer Administrator.	Using another application.

Question?	Summary folders based on Discoverer summary tables/materialized views	Summary folders based on external summary tables
How are they refreshed?	Automatically at regular intervals (defined by the Discoverer manager in Discoverer Administrator).	Using another application.

The figure below illustrates how Discoverer creates a summary folder that is based on a Materialized View. The Materialized View is supplied with data from an external summary, which is populated by an external application.

Figure 15–3 Discoverer using external summaries



When you create a summary using Discoverer Administrator, you specify how the summary is refreshed, which is in one of the following ways:

- by Discoverer - the **Manage the refresh of this summary** check box has been selected on the "[Refresh Summary Folder dialog](#)"
- by an external application - the **Manage the refresh of this summary** check box has been cleared on the "[Refresh Summary Folder dialog](#)"

External summary tables are useful when:

- you are working with existing warehouse applications that have already generated the summary tables using some other method and you want to maintain them externally

- you are using a non-Oracle database

Note: If you are using a non-Oracle database, Discoverer only supports external summary tables and will not create summary folders.

What is different between mapping external summary tables and views to EUL items, with Oracle 8.1.7 (or later) Enterprise Edition databases?

You can create summary folders in Discoverer Administrator by mapping external summary tables or views to EUL items, with Oracle 8.1.7 (or later) Enterprise Edition databases. However, when you map a view to EUL items, materialized views are not created. This is a restriction imposed by Oracle 8.1.7 (or later) Enterprise Edition databases. Where materialized views are not created, query rewrite to Discoverer summary tables is used instead. For more information about query rewrite, see "[What is query rewrite?](#)".

The differences in Mapping external summary tables or views to EUL items with Oracle 8.1.7 (or later) Enterprise Edition databases are highlighted in the table below:

Mapping a table	Mapping a view
<p>Where an external summary table is mapped to EUL items, a materialized view definition is created.</p> <p>In this case the materialized view definition is used for the Oracle 8.1.7 (or later) Enterprise Edition database's query rewrite.</p>	<p>Where an external view is mapped to EUL items, a materialized view is not created.</p> <p>In this case summary folders behave in the same manner as for Oracle Standard Edition databases where Discoverer rewrites queries to use Discoverer summary tables.</p>

About refresh options for Oracle 8.1.7 (or later) Enterprise Edition databases

Oracle 8.1.7 (or later) Enterprise Edition databases support incremental refresh (when available) enabling you to work with large data warehouses/databases. Parallelism (for more information, see below) is also supported for the refresh operation.

For further information on the conditions required for incremental refresh, see *Oracle9i Data Warehousing Guide*.

About refreshing summary folders following import between Oracle databases

Export from an Oracle Standard Edition database to an Oracle 8.1.7 (or later) Enterprise Edition database

If you export a business area with summary folders from an Oracle Standard Edition database and then import it into an Oracle 8.1.7 (or later) Enterprise Edition database, materialized views need to be created for these summary folders. For the database server to create the materialized views, you must refresh the summary folders in Discoverer.

Export from an Oracle 8.1.7 (or later) Enterprise Edition database to an Oracle Standard Edition database

If you export a business area with summary folders from an Oracle 8.1.7 (or later) Enterprise Edition database and then import it into a Oracle Standard Edition database, Discoverer needs to create summary tables based on the summary folders. For Discoverer to do this, you must refresh the summary folders.

Using Discoverer with Oracle Applications

Using Discoverer with Oracle Applications

This chapter explains how Discoverer supports access to Oracle Applications databases using Oracle Applications security and contains the following topics:

- "What are Oracle Applications?"
- "What are Oracle Applications responsibilities?"
- "What features does Discoverer support for Oracle Applications users?"
- "What are the prerequisites for using Discoverer with Oracle Applications?"
- "What is different about running Discoverer in Oracle Applications mode?"
- "How to configure the Connect dialog for Oracle Applications users"
- "How to create an Oracle Applications EUL"
- "How to grant task privileges to all Oracle Applications users via the Public user"
- "How to specify the Oracle Applications users/responsibilities who can access a business area"
- "How to specify the business areas that an Oracle Applications user/responsibility can access"
- "How to specify the tasks an Oracle Applications user or responsibility can perform"
- "How to specify the Oracle Applications users/responsibilities who can perform a specific task"
- "How to display your Oracle Applications database user name and responsibility in a workbook"

What are Oracle Applications?

Oracle Applications are Oracle's integrated enterprise resource planning (ERP) and customer relationship management (CRM) solutions. Oracle Applications enable companies to run and manage their worldwide operations from a central site. For further information see <http://www.oracle.com/>.

What are Oracle Applications responsibilities?

Oracle Applications responsibilities are akin to database roles. They are an abstraction to which privileges can be assigned and which can apply to many users. Oracle Applications responsibilities are used to control Oracle Applications users functional and data access.

An Oracle Applications user connects to an Oracle Applications database and chooses a single Oracle Applications responsibility. Each Oracle Applications responsibility can have a set of privileges associated with it.

This means that an Oracle Applications user will by default assume the task privileges granted to the chosen responsibility (for more information see "[How to specify the Oracle Applications users/responsibilities who can perform a specific task](#)"). To change responsibility but keep the same user you must reconnect.

Notes

- If you encounter anomalies in Discoverer items available to users (e.g. there is a difference between folders or items visible in Discoverer Administrator and Discoverer Plus for the same Appuserid or Responsibility), this might be caused by how Oracle Applications security is set up. For more information about Oracle Applications security, contact the Oracle Applications administrator.

What features does Discoverer support for Oracle Applications users?

Discoverer supports the following features for Oracle Applications:

- Ad-hoc query access to Oracle Applications databases using Oracle Applications user names, passwords and responsibilities
- Oracle Applications mode EULs

An Oracle Applications mode EUL is a Discoverer End User Layer based on an Oracle Applications schema (containing the Oracle Applications FND (Foundation) tables and views). Oracle Applications EULs employ Oracle

Applications user names and responsibilities whereas standard EULs use database users and roles.

The only database user (i.e. non-Oracle Applications user) that can connect to an Oracle Applications mode EUL is the EUL owner. The EUL owner is the database user that is used to create the EUL. However, the EUL owner can grant administration privileges to Oracle Applications users. The authorized Oracle Applications users can then connect to the Oracle Applications mode EUL using Discoverer Administrator.

- Oracle Applications row level security

Many Oracle Applications tables and views are user-sensitive, and will return different results depending on which user/responsibility is used to access these tables/views. Discoverer correctly runs queries that respect these user-sensitive tables and views.

- Oracle Applications multiple reporting currencies

When connecting to Discoverer as an Oracle Applications user/responsibility, Discoverer will automatically connect to the correct schema (either APPS or APPS_MRC) to support Oracle Applications instances that have implemented the multiple reporting currencies feature.

- Oracle Applications multiple organizations

Using Discoverer with Oracle Applications multiple organizations support enables you to work with data from more than one organization. Discoverer end users can query and analyze data from a set of organizations to which they have been granted access. The folders in the EUL you are connecting to must be based on Oracle Business Views (available in Oracle Applications 11i).

These features are only available when Discoverer is running in Oracle Applications mode. In other words, when Discoverer is running with an Oracle Applications mode EUL against an Oracle Applications database.

What are the prerequisites for using Discoverer with Oracle Applications?

To start Discoverer as an Oracle Applications user the following conditions must be met:

- Oracle Applications must be installed before Discoverer can be used in applications mode

- Discoverer must be running against one of the following Oracle Applications versions:
 - Release 10.7
 - Release 11
 - Release 11i

What is different about running Discoverer in Oracle Applications mode?

The following differences apply in Discoverer when running in Oracle Applications mode:

- ["Differences with the Discoverer Connect dialog in Oracle Applications mode"](#)
- ["Differences with Discoverer security in Oracle Applications mode"](#)
- ["Differences with Discoverer summary folders in Oracle Applications mode"](#)
- ["Differences with Discoverer and secure views/language settings in Oracle Applications mode"](#)

Differences with the Discoverer Connect dialog in Oracle Applications mode

When you run Discoverer in Oracle Applications mode the ["Connect to Oracle Discoverer Administrator dialog \(for Oracle Applications users\)"](#) will either display or not display the Oracle Applications user check box.

Figure 16–1 *Connect to Oracle Discoverer Administrator dialog (for Oracle Applications users)*



For more information, see ["How to configure the Connect dialog for Oracle Applications users"](#).

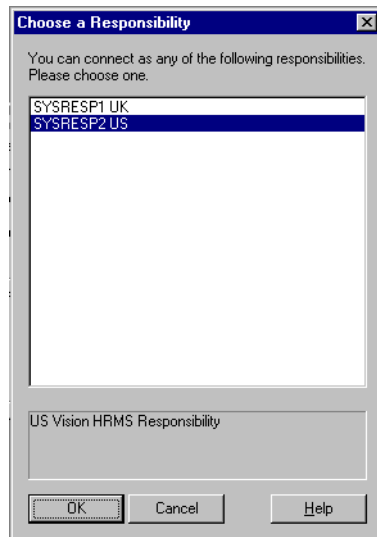
The following conditions apply when the Connect dialog is configured for Oracle Applications users:

- if the Oracle Applications user check box is not displayed you connect to Discoverer as an Oracle Applications database user
- if the Oracle Applications user check box is displayed, you select the check box to connect to Discoverer as an Oracle Applications user. Alternatively, clear the Oracle Applications user check box to connect as an Oracle database user.

Once you have entered details into the Connect dialog and clicked OK Discoverer displays a Responsibilities dialog and you can choose the responsibility with which to connect (if the Oracle Applications user you are connecting with has more than one responsibility).

You can bypass the Choose a Responsibility dialog by entering both the Oracle Applications user and the responsibility into the **Username** field in the form 'user:responsibility'.

Figure 16–2 Choose a Responsibility dialog



Differences with Discoverer security in Oracle Applications mode

When you run Discoverer Administrator as an Oracle Applications user, then the Discoverer Privileges and Security dialogs display Oracle Applications user names and responsibilities. You can assign privileges and security to Oracle Applications user names and responsibilities. When you run Discoverer Administrator as a database user then the Discoverer Privileges and Security dialogs display database users and database roles.

For more information about using privileges to control access to information, see [Chapter 6, "About Discoverer and security"](#).

Differences with Discoverer summary folders in Oracle Applications mode

As the Discoverer manager of an Oracle Applications mode EUL you must be aware of the following:

- Some Oracle Applications database views contain row level security and return differing result sets depending upon the currently active responsibility. This means that materialized views (summary tables in Oracle Standard Edition databases) will contain different data depending on the responsibility of the user refreshing the external summary folder.
- A summary folder based on an Oracle Applications secure view or Oracle Applications business view must be registered in Discoverer as an external summary folder (for more information, see [Chapter 14, "How to create summary folders based on external summary tables"](#)).
- Where an external summary folder is mapped against a table or view with Oracle Applications row level security, it is your responsibility as Discoverer manager to make sure the external table or view provides secure access. If you are not sure, ask your database administrator.
- If a managed summary folder is found that satisfies a query (based on data with Oracle Applications row level security), Discoverer informs the end user that no rows satisfy the query criteria. Discoverer does this to ensure that end users do not see data they should not have access to.
- If a managed summary folder is found that satisfies a query (based on data without Oracle Applications row level security), Discoverer returns the rows unaffected. Discoverer does this because the data can be safely accessed by all end users.
- Some Oracle Applications views with row-level security support "public" rows (particularly Human Resources).

Differences with Discoverer and secure views/language settings in Oracle Applications mode

When a Discoverer end user uses a workbook that accesses Oracle Applications secure views, the user might see different results on different machines (even when using the same connection information) if the machines have different local language (NLS) settings.

When using Oracle Applications secure views, the local language setting of the machine affects the data retrieved by Discoverer. Discoverer will display data consistently across machines with the same language setting.

To change a machines local language setting (on Windows), choose Start | Settings | Control Panel | Regional Settings and change the language value.

For more information on secure views, see [Chapter 19, "How to use query prediction with secure views"](#).

You can also define a language setting (NLS) for a user, responsibility, application or site using the Profiles setting in Oracle Applications. For more information see the Oracle Applications documentation.

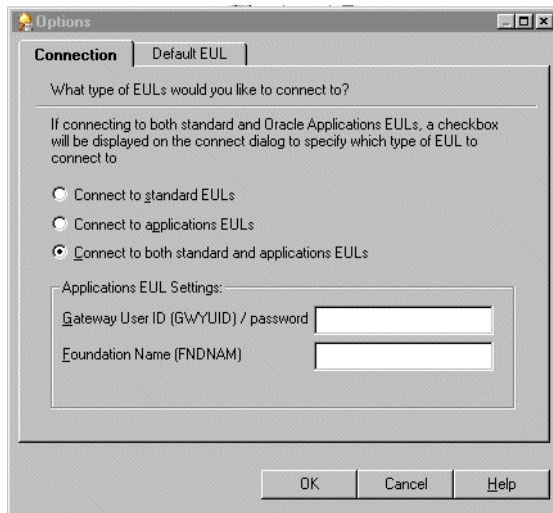
How to configure the Connect dialog for Oracle Applications users

Before you connect to Oracle Discoverer as an Oracle Applications user, you must configure the Connect dialog to default to Oracle Applications users.

To configure the Connect dialog for Discoverer Administrator and Discoverer Desktop:

1. Select Tools | Options to display the "[Options dialog: Connection tab](#)":

Figure 16–3 The Options dialog: Connection tab



- Specify the type of EUL to connect to by selecting one of the following option:

Option	Use this option to:
Connect to standard EULs	The Oracle Applications User check box is not displayed in the Connect dialog and Discoverer expects standard database users.
Connect to applications EULs	The Oracle Applications User check box is not displayed in the Connect dialog but Discoverer expects users to connect using an Applications user id/password and Oracle Applications database connect string.
Connect to both standard and applications EULs	The Oracle Applications User check box is displayed in the Connect dialog and (depending on whether the check box is cleared or selected) you can connect to either standard or Oracle Applications database EULs.

Notes

- To configure the Connect dialog for Discoverer Desktop, repeat the steps described above for Discoverer Administrator, but within Discoverer Desktop.
- To configure the Connect dialog for Discoverer Plus and Viewer to validate Oracle Applications user names and passwords, see the *Oracle Application Server Discoverer Configuration Guide*.

About entering details into the fields GWYUID/Password and FNDNAM

When you use the Options dialog: Connections tab and you select either the **Connect to applications EULs** radio button or the **Connect to both standard and applications EULs** radio button you can enter values into these fields, but Discoverer uses default values if you do not. The fields and default values are as follows:

- Gateway User ID (GWYUID)/Password
You can enter your Gateway User ID and Password here (the default value used is 'applsypub/pub' if you enter nothing here).
- Foundation Name (FNDNAM)
You can enter the Foundation Name (the default value used is 'apps' if you enter nothing here).

If you do not know the values to enter into the above fields contact your Oracle Applications database administrator.

How to create an Oracle Applications EUL

You create an Oracle Applications EUL in two ways:

- using the Create EUL dialog
- using the command line interface

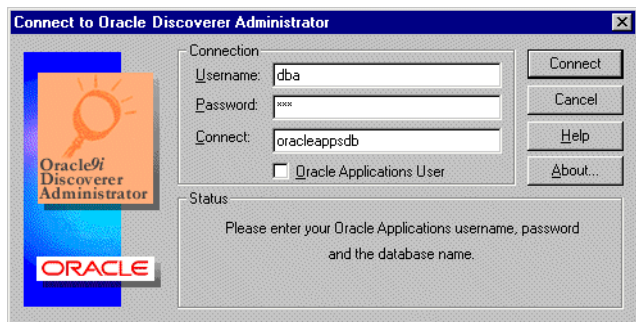
To create an Oracle Applications EUL using the Create EUL dialog:

1. Start Discoverer Administrator and display the "[Connect dialog](#)".
2. Enter the user name, password and connect string for a DBA user.

For example, dba/dbapassword@oracleappsdb.

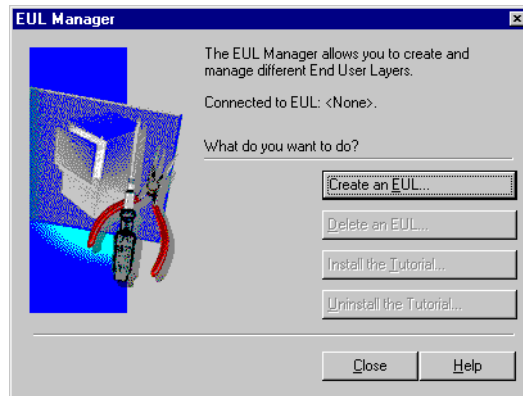
Note: You must not specify the user name of an Oracle Applications user. The EUL owner is always a database user.

Figure 16–4 *Connect to Oracle Discoverer Administrator dialog*



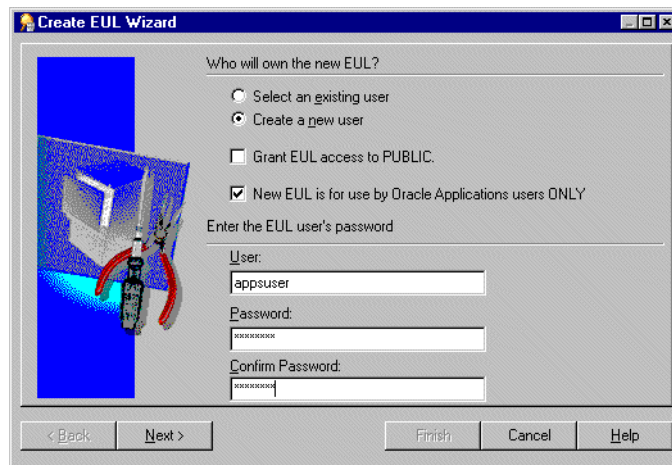
Note: The Oracle Applications user Connect dialog might display the **Oracle Applications User** check box. For more information see ["How to configure the Connect dialog for Oracle Applications users"](#).

3. Clear the **Oracle Applications User** check box (i.e. if the check box is displayed).
4. Click Connect.
If no EULs exist Discoverer displays a dialog for you to choose whether to create an EUL now.
5. Click Yes.
6. Discoverer displays the ["EUL Manager dialog"](#).

Figure 16–5 EUL Manager dialog

7. Click Create an EUL to display the "Create EUL Wizard dialog".

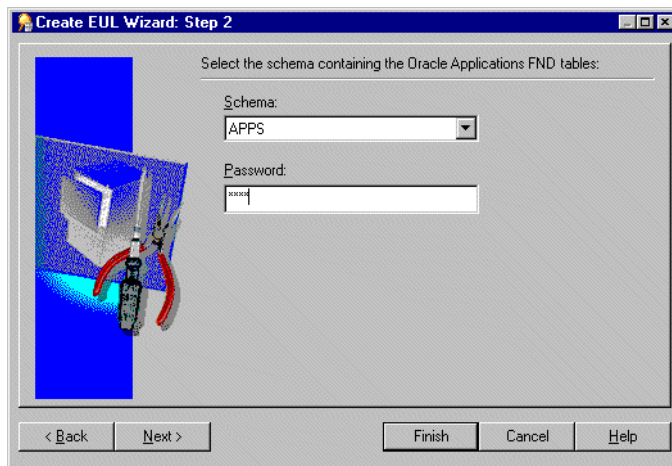
This is where you create a new database user and Oracle Applications EUL.

Figure 16–6 Create EUL Wizard dialog

8. Specify whether an existing or new user is to own the Oracle Applications EUL by selecting one of the following radio buttons:

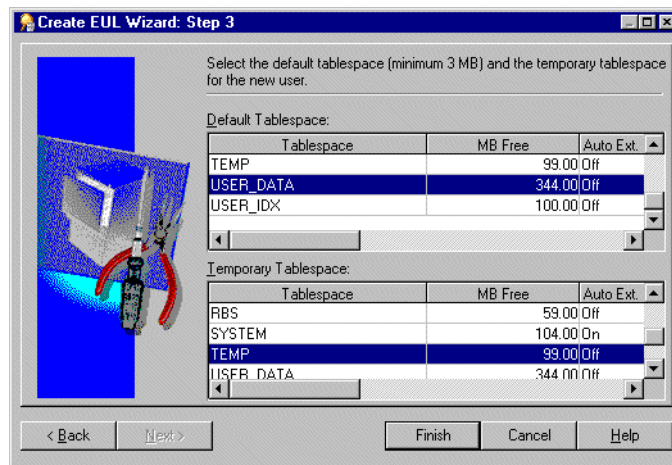
- **Select an existing user**
then select a user from the drop down list in the **User** field
 - **Create a new user**
then enter a user name, password/confirmation for the new user
- Note:** The EUL owner is always a database user. Please specify a database user.
9. (optional) Clear the **Grant EUL access to PUBLIC** check box.
- Hint:** We recommend that you clear the **Grant EUL access to PUBLIC** check box to restrict public access to your EUL tables. If you do not select the **Grant EUL access to PUBLIC** check box, but still want other database users to have access to your EUL tables, you will need to grant access to your EUL tables manually.
- If you want to grant all database users access to your EUL tables you must select the **Grant EUL access to PUBLIC** check box.
10. Select the **New EUL is for Oracle Applications users ONLY** check box to create an Oracle Applications mode EUL.
11. Click Next to display the "Create EUL Wizard: Step 2 dialog" where you select the Oracle Applications schema and enter the schema password.

Figure 16–7 Create EUL Wizard: Step 2 dialog



12. Use the **Schema** drop down list to select the Oracle Applications schema containing the Oracle Applications FND tables.
13. Enter the password for the Oracle Applications schema and click Next.
14. (if creating a new user) If you are creating a new user Discoverer displays the "Create EUL Wizard: Step 3 dialog" where you select the default and temporary tablespaces for the new database user/schema.

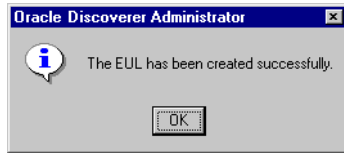
Figure 16–8 Create EUL Wizard Step 3 dialog



15. (if creating a new user) Highlight the required Default and Temporary tablespaces you want to use for the Oracle Applications EUL owner.

Hint: Ask your Oracle Applications database administrator if you are not sure.
 16. Click Finish to create the tables and views for the new Oracle Applications mode EUL and populate them with default data.
- Discoverer displays a dialog to confirm the creation of the new EUL:

Figure 16–9 Create EUL wizard - success dialog



17. Click OK to close the confirmation dialog.

Discoverer displays a dialog that gives you the option to install tutorial data into the new EUL.

18. Click Yes or No to specify whether to install the tutorial data.

Discoverer displays a dialog that gives you the option to reconnect to the database as the owner of the new Oracle Applications EUL you have just created, or to remain connected as the DBA.

Notes

- Having created an Oracle Applications EUL you can now:
 - Grant task privileges to an Oracle Applications user so that they have the ability to carry out tasks in Discoverer Administrator or Discoverer Plus using this Oracle Applications EUL (for more information, see ["How to specify the tasks an Oracle Applications user or responsibility can perform"](#)).
 - Create a new business area using the Oracle Applications tables (for further information, see [Chapter 4, "What are business areas?"](#)).
 - Grant access to the tutorial business area to Oracle Applications users and responsibilities (for more information, see ["How to specify a user or role \(responsibility\) that can access a business area"](#)). Granting access to the tutorial business area enables Oracle Applications users and responsibilities to access the tutorial database.
 - If you did not install the Tutorial into the Apps Schema, you must grant the select privilege on the tutorial tables to the APPS schema owner (for more information about granting privileges, see the *Oracle9i SQL Reference Guide*. The select privilege is required because the APPS schema owner is the database user that is used as the proxy by applications users. Therefore, APPS schema owner must have select access to the tutorial tables.

- When you create a new Oracle Applications business area, the schema objects you load into the business area must be based on secure views. This retains the row-level security associated with a specific Oracle Applications responsibility. Ask your Oracle Applications database administrator for further information.
- You can also create an Applications mode EUL via the command line (for more information see [Chapter 21, "/create_eul /apps_mode"](#)).

How to grant task privileges to all Oracle Applications users via the Public user

You can grant task privileges to all Oracle Applications users in one action by using the Public user.

To grant task privileges to all Oracle Applications users:

1. Start Discoverer Administrator and connect as an Oracle Applications user.
2. Choose Tools | Privileges to display the "[Privileges dialog: Privileges tab](#)"

The Privileges dialog contains the Public user. The public user is not an Oracle Applications user but represents all Oracle Applications users. You can grant a privilege to every Oracle Applications user by granting that privilege to the Public user. You can subsequently modify individual users' privileges as required.

3. Grant privileges to the Public user as required.

For more information, see [Chapter 6, "How to specify the tasks a user or role \(responsibility\) can perform"](#).

How to specify the Oracle Applications users/responsibilities who can access a business area

This task describes how to grant (or deny) access permission for business areas to specific users or responsibilities.

For information about Oracle Applications responsibilities, see "[What are Oracle Applications responsibilities?](#)".

Note: When completing the following task there is a notable difference between what Oracle database users and Oracle Applications users will see in the dialog:

- Oracle database users will see the words Users and Roles

- Oracle Applications database users will see the words Users and Responsibilities

For more information about this task see [Chapter 6, "How to specify a user or role \(responsibility\) that can access a business area"](#).

How to specify the business areas that an Oracle Applications user/responsibility can access

This task describes how to specify which business areas a specific Oracle Applications user or responsibility can access.

For information about Oracle Applications responsibilities, see "[What are Oracle Applications responsibilities?](#)"

Note: When completing the following task there is a notable difference between what Oracle database users and Oracle Applications users will see in the dialog:

- Oracle database users will see the words Users and Roles
- Oracle Applications database users will see the words Users and Responsibilities

For information about this task see [Chapter 6, "How to specify the business areas a user or role \(responsibility\) can access"](#).

How to specify the tasks an Oracle Applications user or responsibility can perform

This section describes how to specify the tasks a specific user or responsibility can perform.

For information about Oracle Applications responsibilities, see "[What are Oracle Applications responsibilities?](#)".

Note: When completing the following task there is a notable difference between what Oracle database users and Oracle Applications users will see in the dialog:

- Oracle database users will see the words Users and Roles
- Oracle Applications database users will see the words Users and Responsibilities

For information about this task see [Chapter 6, "How to specify the tasks a user or role \(responsibility\) can perform"](#).

How to specify the Oracle Applications users/responsibilities who can perform a specific task

This section describes how to specify the users or responsibilities that can perform a specific task.

For information about Oracle Applications responsibilities, see ["What are Oracle Applications responsibilities?"](#).

Note: When completing the following task there is a notable difference between what Oracle database users and Oracle Applications users will see in the dialog:

- Oracle database users will see the words Users and Roles
- Oracle Applications database users will see the words Users and Responsibilities

For information about this task see [Chapter 6, "How to specify a user or role \(responsibility\) to perform a specific task"](#).

How to display your Oracle Applications database user name and responsibility in a workbook

You can use a custom folder to display the name of your Oracle Applications database user and responsibility in a Discoverer workbook. You might want to do this because Discoverer workbooks can display different results depending on the Oracle Applications database user and responsibility that runs the workbook. This task enables you to identify which Oracle Applications database user and responsibility has run a particular Discoverer workbook.

To display your Oracle Applications database user name and responsibility in a Discoverer workbook using a custom folder:

1. Start Discoverer Administrator and display the ["Connect dialog"](#).
2. Enter your Oracle Applications database user name, password and connect string.

For example, apps1/apps1password@oracleappsdb:

3. If the Oracle Applications database user has more than one responsibility, choose a responsibility from the **Responsibility** list displayed in the ["Responsibilities dialog"](#).
4. Choose Tools | Register PL/SQL Functions to display the ["PL/SQL Functions dialog: Functions tab"](#).

Note: The PL/SQL functions FND_GLOBAL.USER_NAME and FND_GLOBAL.RESP_NAME must be available in the "[PL/SQL Functions dialog: Functions tab](#)" before you can subsequently use them in a custom folder.

5. If either of the functions FND_GLOBAL.USER_NAME and FND_GLOBAL.RESP_NAME do not appear in the functions list you can import them.

To import the PL/SQL functions:

- a. Click Import to display the "[Import PL/SQL Functions dialog](#)".
- b. Choose both PL/SQL functions from the list and click OK to close the import PL/SQL Functions dialog.

Note: Each PL/SQL function is prefixed with the default Oracle Applications user, Apps (e.g. Apps.FND_GLOBAL.USER_NAME).

- c. Click OK to close the PL/SQL Functions dialog: Functions tab and apply the changes.
6. (optional) If you do not want to import the PL/SQL functions FND_GLOBAL.USER_NAME and FND_GLOBAL.RESP_NAME, you can create them.

Note: You might choose to create these two PL/SQL functions (instead of importing them), if the database takes a long time to display information.

To create the PL/SQL functions:

- a. Click New to create a new PL/SQL function, and populate the fields with default data.
- b. Enter FND_GLOBAL.USER_NAME into the **Function Name** field.
- c. Enter FND_GLOBAL.USER_NAME into the **Display Name** field.
- d. Enter APPS into the **Owner** field.
- e. Choose Varchar in the **Return Type** field.
- f. Enter some meaningful text into the **Identifier** field.
- g. Click Apply to save the changes.
- h. Repeat the above steps to create another PL/SQL function for FND_GLOBAL.RESP_NAME (i.e. replacing FND_GLOBAL.USER_NAME with FND_GLOBAL.RESP_NAME in step b).
- i. Click OK to close the dialog and save the changes.

7. Create a new business area or open an existing business area.

For more information, see ["Creating and maintaining business areas"](#).

Note: In the following steps you will create a custom folder that contains the items User Name and Resp Name, and then you will include these items in a workbook. To make the custom folder readily available to other Oracle Applications business areas, you can create a new business area to contain just the custom folder.

8. Choose Insert | Folder | Custom to display the ["Custom Folder dialog"](#).
9. Enter a meaningful name for the custom folder (e.g. UserResp_Name).
10. Enter the following SQL statement into the **Enter the SQL to define the custom folder** field:

```
select fnd_global.user_name, fnd_global.resp_name from dual;
```

The SQL statement above creates a custom folder containing the two items, User Name and Resp Name. Discoverer will use the PL/SQL functions (that you previously imported or created) to display the Oracle Applications database user name and responsibility represented by User Name and Resp Name.

For more information, see ["How to create custom folders"](#).

11. Connect to Discoverer Plus or Discoverer Desktop using your Oracle Applications database user and responsibility name.

For more information about using:

- Discoverer Plus, see the *Oracle Application Server Discoverer Plus User's Guide*.
- Discoverer Desktop, see the *Oracle Application Server Discoverer Desktop User's Guide*.

12. Open an existing workbook or create a new workbook.
13. Create a new worksheet that contains just the custom folder items User Name and Resp Name.

Note: Because this custom folder is not joined to other folders, the items User Name and Resp Name must be the only items on the worksheet.

14. Run the workbook in Discoverer Plus, Discoverer Desktop or Discoverer Viewer.

The Discoverer workbook will contain a worksheet that displays your Oracle Applications database user name and responsibility name.

Using Discoverer with components of Oracle Application Server

Using Discoverer with components of Oracle Application Server

This chapter explains how to use Discoverer with components of Oracle Application Server (OracleAS), such as OracleAS Web Cache and OracleAS Portal, and contains the following topics:

- ["Using Discoverer with Oracle Enterprise Manager"](#)
- ["Using Discoverer with OracleAS Reports"](#)
- ["Using Discoverer with OracleAS Web Cache"](#)
- ["Using Discoverer with Oracle Warehouse Builder"](#)
- ["Using Discoverer with OracleAS Login Server"](#)
- ["Using Discoverer with OracleAS Portal"](#)

Using Discoverer with Oracle Enterprise Manager

Oracle Enterprise Manager provides a common look and feel, behavior and security infrastructure to configure the middle tier web components of OracleAS with a single tool. Using a single tool for all OracleAS components reduces the time spent on administration and configuration. You can use Enterprise Manager to configure Discoverer's middle tier web components.

For more information, see:

- *Oracle Application Server Discoverer Configuration Guide*
- *Oracle Application Server Discoverer Enterprise Manager help*

Using Discoverer with OracleAS Reports

Discoverer users can share workbooks, export them to OracleAS Reports (V7.0 and later) enabling Reports users to open a Discoverer workbook. The workbook SQL, additional formatting and calculations are passed to OracleAS Reports using an XML based workbook. The workbook is translated into an OracleAS Reports-compatible format that can be modified using OracleAS Reports.

In OracleAS Reports the look and feel of the original Discoverer workbook is retained so that the OracleAS Reports user can continue to work on the Report in a standalone fashion. To further emphasize this point: no further interaction with the Discoverer server is required for the Reports user to enhance the file

For more information, see the *Oracle Application Server Discoverer Plus User's Guide*.

Using Discoverer with OracleAS Web Cache

OracleAS Web Cache helps e-businesses improve Web site performance issues. Oracle Web Cache is a content-aware server accelerator that improves the performance, scalability and availability of Web sites that run on Oracle Application Server and Oracle8i databases (or later). High accessibility is achieved at high speed by applying the latest caching techniques provided by OracleAS Web Cache.

By storing frequently accessed URLs in memory, OracleAS Web Cache eliminates the need to repeatedly process requests for those URLs on the application Web server. Unlike legacy proxy servers that handle only static documents, OracleAS Web Cache caches both static and dynamically generated content from one or more application Web servers. Because OracleAS Web Cache is able to cache more content than legacy proxy servers, it provides optimal performance by greatly reducing the load on application Web servers.

For more information, see the *Oracle Application Server Discoverer Configuration Guide*.

Using Discoverer with Oracle Warehouse Builder

Oracle Warehouse Builder(OWB) can generate Discoverer metadata. You can use OWB and Discoverer Bridge to create a Discoverer EUL in OWB's meta layer, and then create a Discoverer export file (.EEX file). The .EEX file can be imported into a Discoverer EUL using Discoverer Administrator (for more information, see [Chapter 3, "How to import EUL objects from a file using the Import Wizard"](#)). The Discoverer EUL retains the folder and item lineage from OWB. You can display the

folder and item lineage from OWB by using a Discoverer Lineage workbook. For more detailed information, see the Discoverer Release Notes.

Using Discoverer with OracleAS Login Server

The OracleAS Login Server provides a framework which allows any web-based client, inside or outside of OracleAS Portal, to use Oracle's Single Sign On (SSO) services. OracleAS Login Server is intended for use with an LDAP server which provides the means for storing and managing all the user credentials.

Using Discoverer with OracleAS Portal

You can publish Discoverer workbooks and worksheets to OracleAS Portal quickly and easily. OracleAS Portal's intuitive user interface guides you through the publishing process step by step, enabling you to create powerful business intelligence portals with ease.

For more information about publishing to OracleAS Portal, see the *Oracle Application Server Discoverer Plus User's Guide*.

EUL status workbooks

EUL status workbooks

This chapter explains how to use Discoverer Administrator's EUL status workbooks and contains the following topics:

- ["What are EUL status workbooks?"](#)
- ["About the Discoverer EUL V5 business area"](#)
- ["How to install the standard EUL status workbooks"](#)
- ["How to install Oracle Applications EUL status workbooks"](#)
- ["How to run Oracle Applications EUL status workbooks"](#)
- ["How to uninstall the Discoverer EUL V5 business area"](#)
- ["About the EUL Data Definition workbook"](#)
- ["About the Query Statistics workbook"](#)
- ["Notes on EUL status workbooks and the table DBA_JOBS_RUNNING"](#)

What are EUL status workbooks?

EUL status workbooks are Discoverer workbooks that provide useful reports for managing and documenting Discoverer End User Layers (EULs). The EUL status workbooks query information from folders in the Discoverer EUL V5 business area. You can analyze EUL status workbooks in Discoverer Plus or Discoverer Viewer.

You can give any Discoverer user access to the EUL status workbooks. However, the EUL status workbooks are intended primarily for administrative purposes.

The following EUL status workbooks are supplied with Discoverer:

- EUL Data Definition - this workbook contains information about data in the EUL
- Query Statistics - this workbook contains query statistics collected by Discoverer

Instructions explaining how to use each workbook are contained within individual worksheets.

Although the EUL status workbooks are supplied with Discoverer, they are not installed by default. How to install the workbooks depends on the type of EUL as follows:

- if you are running Discoverer against a standard EUL, follow the instructions in "[How to install the standard EUL status workbooks](#)"
- if you are running Discoverer against an Oracle Applications EUL, follow the instructions in "[How to install Oracle Applications EUL status workbooks](#)"

The EUL status workbooks are installed into the <ORACLE_HOME>\discoverer directory.

Having installed the EUL status workbooks, you can:

- edit the Discoverer EUL V5 business area
- edit the supplied EUL status workbooks
- create your own EUL status workbooks

Note that you can only run the EUL status workbooks against Oracle databases.

About the Discoverer EUL V5 business area

You can edit the workbooks or the Discoverer EUL V5 business area to suit your requirements. You can also create your own EUL status workbooks.

The Discoverer EUL V5 business area is similar to any other business area in the EUL. The folders within Discoverer EUL V5 business area include:

Folder	Description
BA & Folders	Business areas and folders defined in the EUL
Folders & Items	Folders and items defined in the EUL
Joins	The structures of joins defined in the EUL
Hierarchies	The structure of hierarchies

Folder	Description
Item Classes	The structure of Item Classes or LOVs
Summary Mappings	Mapping of summary tables to folders
Security	Users access to business areas
Privileges	Users Discoverer privileges
Workbook Management	List of workbooks saved to the database and who can access them

You can use the folders in the Discoverer EUL V5 business area to build your own workbooks to analyze and document the structure of your Discoverer business areas.

Note that certain folders in the Discoverer EUL V5 require the EUL owner to have SELECT access to the DBA_JOBS_RUNNING database table. For more information, see "[Notes on EUL status workbooks and the table DBA_JOBS_RUNNING](#)".

If you want to modify the supplied EUL status workbooks, we recommend you save a copy with a different name and modify the copy. Otherwise, any changes you make could be lost because the supplied EUL status workbooks are replaced with each new version of Discoverer.

How to install the standard EUL status workbooks

Follow these steps if you are running Discoverer against a standard EUL.

Note: You must have an EUL installed (for more information, see [Chapter 3, "Creating and maintaining End User Layers"](#)).

To install the standard EUL status workbooks:

1. Start SQL*Plus (if it is not already running) and connect as the EUL owner.
For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect jchan/tiger
```


Where jchan is the EUL owner and tiger is the EUL owner password.
2. Run the SQL file eul5.sql
For example you might type the following at the command prompt:

```
SQL> start d:\<ORACLE_HOME>\discoverer\util\eul5.sql
```

Where <ORACLE_HOME> is where Discoverer Administrator is installed.

The eul5.sql file creates some custom PL/SQL functions required by the Discoverer EUL V5 business area.

3. Exit the SQL*Plus session.
4. Start Discoverer Administrator.
5. Import the file eul5.eex as follows:
 - a. Choose File | Import to display the "Import Wizard: Step 1 dialog"
 - b. Click Add to display the Open dialog
 - c. Select the file d:\<ORACLE_HOME>\discoverer\eul5.eex, where d:\<ORACLE_HOME> is where Discoverer Administrator is installed.
 - d. Click Open to return to the "Import Wizard: Step 1 dialog".

The selected SQL file eul5.eex appears in the Import file list.
 - e. Click Next to display the "Import Wizard: Step 2 dialog".

The default settings are acceptable.
 - f. Click Next to display the "Import Wizard: Step 3 dialog".

This dialog enables you to start the import and monitor its status as each EUL object is processed.
 - g. Click Start to begin importing the EUL status workbooks.

When the import is complete, the 'Import Successful' message is displayed.
 - h. Click Finish to close the "Import Wizard: Step 3 dialog".

Having imported the EUL status workbooks you can now open them using Discoverer Plus or Discoverer Viewer.

Notes

- If you have upgraded from Discoverer Release 4, the EUL might contain a business area called EUL for Discoverer V4. This business area is no longer required, so delete it. Having deleted the EUL for Discoverer V4 business area remove the associated PL/SQL functions:

```
EUL4_GET_ANALYZED  
EUL4_GET_COMPLEX_FOLDER
```

```
EUL4_GET_HEIRLVL  
EUL4_GET_HIERORD  
EUL4_GET_ITEM  
EUL4_GET_ITEM_NAME  
EUL4_GET_OBJECT  
EUL4_GET_OBJECT_NAME  
EUL4_GET_SIMPLE_FOLDER
```

Hint: For more information about how to remove PL/SQL functions, see the appropriate steps contained in "[How to uninstall the Discoverer EUL V5 business area](#)").

How to install Oracle Applications EUL status workbooks

Follow these steps if you are running Discoverer against an Oracle Applications EUL.

Note: You must have an Oracle Applications EUL installed (for more information, see [Chapter 16, "Using Discoverer with Oracle Applications"](#)).

To install the Oracle Applications EUL status workbooks:

1. Start SQL*Plus (if it is not already running) and connect as the EUL owner.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect jchan/tiger
```

Where jchan is the EUL owner and tiger is the EUL owner password.

2. Run the SQL file eul5_apps.sql

For example you might type the following at the command prompt:

```
SQL> start d:\<ORACLE_HOME>\discoverer\util\eul5_apps.sql
```

Where <ORACLE_HOME> is where Discoverer Administrator is installed.

The eul5_apps.sql file creates some custom PL/SQL functions required by the Discoverer V5 EUL business area.

You are prompted for the username of the Oracle Applications FNDNAM schema.

3. Enter the username of the FNDNAM schema.

Note: Only enter the FNDNAM schema's username. Do not enter a password

You are prompted to check the username you entered.

4. Make sure the username you entered is correct.

If the name is not correct, re-run the script.

5. Start Discoverer Administrator.

6. Import the file eul5.eex as follows:

- a. Choose File | Import to display the "Import Wizard: Step 1 dialog"

- b. Click Add to display the Open dialog

- c. Select the file d:\<ORACLE_HOME>\discoverer\eul5.eex, where d:\<ORACLE_HOME> is where Discoverer Administrator is installed.

- d. Click Open to return to the "Import Wizard: Step 1 dialog".

The selected SQL file eul5.eex appears in the Import file list.

- e. Click Next to display the "Import Wizard: Step 2 dialog".

The default settings are acceptable.

- f. Click Next to display the "Import Wizard: Step 3 dialog".

This dialog enables you to start the import and monitor its status as each EUL object is processed.

- g. Click Start to begin importing the EUL status workbooks.

When the import is complete, the 'Import Successful' message is displayed.

- h. Click Finish to close the "Import Wizard: Step 3 dialog".

Having imported the EUL status workbooks you can now open them using Discoverer Plus or Discoverer Viewer.

How to run Oracle Applications EUL status workbooks

To run the EUL status workbooks with an Oracle Applications EUL in Discoverer Plus, you must connect as an Oracle Applications User or Responsibility. You cannot run the EUL status workbooks as the EUL owner.

To run Oracle Applications EUL status workbooks:

1. Start Discoverer Administrator as the EUL owner
2. Grant access to the EUL5 business area to either an Oracle Applications User or an Oracle Applications Responsibility.

For more information about granting access to business areas, see [Chapter 6, "Controlling access to information"](#).

3. Start Discoverer Plus or Discoverer Viewer as the User or Responsibility to which you granted access.

Notes

- The EUL status workbooks are shared with the PUBLIC user and are owned by the EUL owner. In other words, all users who can access the Discoverer EUL V5 business area can successfully run both the EUL Data Definition and Query Statistics workbooks.

How to uninstall the Discoverer EUL V5 business area

To uninstall the Discoverer EUL V5 business area:

1. Connect to Discoverer Plus as the EUL Owner and delete the following workbooks:
 - EUL Data Definition
 - Query Statistics

Note: If the EUL status workbooks are installed in an Oracle Applications EUL, you cannot connect to Discoverer Plus as the EUL Owner to delete the workbooks. Instead, use the Discoverer Administrator command line interface to delete the workbook by typing the following at the command prompt:

```
<ORACLE_HOME1>\bin\dis51adm.exe /connect <eulowner>/<eulowner @  
password>@<database> /delete /workbook "<workbook name>"
```

where "<workbook name>" is either "EUL Data Definition" or "Query Statistics".

2. Start Discoverer Administrator as the owner of the EUL containing the Discoverer EUL V5 business area
3. Open the Discoverer EUL V5 business area.
4. Highlight the Discoverer EUL V5 Business Area in the workarea.
5. Choose Edit | Delete to display the Confirm Business Area Delete dialog.
6. Select **Delete this Business Area and its Folders**.
7. Click Yes to delete the Discoverer EUL V5 business area and its folders.

You can now remove the PL/SQL functions associated with the Discoverer EUL V5 business area.

8. Choose Tools | Register PL/SQL Functions to display the PL/SQL Functions dialog.
9. Highlight the following functions:
 - EUL5_GET_ANALYZED
 - EUL5_GET_APPS_USERRESP
 - EUL5_GET_COMPLEX_FOLDER
 - EUL5_GET_HEIRLVL
 - EUL5_GET_HIERORD
 - EUL5_GET_ISITAPPS_EUL
 - EUL5_GET_ITEM
 - EUL5_GET_ITEM_NAME
 - EUL5_GET_OBJECT
 - EUL5_GET_OBJECT_NAME
 - EUL5_GET_SIMPLE_FOLDER
10. Click Delete for each of the functions to delete the Custom PL/SQL Functions associated with the Discoverer EUL V5 business area.

You have now successfully removed the EUL status workbooks.

About the EUL Data Definition workbook

The EUL Data Definition workbook provides reports on the objects contained in the EUL. You would use the EUL Data Definition workbook to learn more about how EUL objects are configured. The workbook consists of the following worksheets:

Worksheet	Description
EUL Version	The version of the Discoverer EUL you are currently using.
Business Areas and Folders	The folders in each business area
Folders and Items	The items in each folder in each business area
Joins	The joins defined in each business area.
Conditions	The conditions defined in each business area.
Hierarchies	The hierarchies defined in each business area.
Item Classes - LOVs	The List of Values defined in each business area.

Worksheet	Description
Security	Access to business areas, by Users/Roles/Responsibilities.
Privileges	Access privileges, by Users/Roles/Responsibilities.
Summary Mappings	Mapping of folders to summaries, by business area.
Workbook Management	List of workbooks saved to the database and who can access them.

About the Query Statistics workbook

The Query Statistics workbook displays statistical information about the queries that end users have run. You would use the Query Statistics workbook to learn more about the nature of end user queries. The workbook consists of the following worksheets:

Worksheet	Description
Query Statistics	The version of the Discoverer EUL to which you are currently connected.
Workbooks Queried by User	Workbooks queried by user.
Workbook Query Statistics	Query statistics about each workbook.
Workbooks that have used summaries.	Which workbooks have used summaries.
Ad-hoc Queries by User	Shows the User and the Folders and Items queried but not saved to the database.
Ad-hoc Queries by Workbook	Shows the workbooks queried but not saved to the database.
Ad-hoc Queries that used a Summary	Shows the queries not saved to the database that used a summary.

Notes on EUL status workbooks and the table DBA_JOBS_RUNNING

Certain folders (specifically the EUL5_DBA_JOBS_RUNNING folder) in the Discoverer EUL V5 business area require the EUL owner to have SELECT access to the DBA_JOBS_RUNNING database table. Without SELECT access to this table, the ORA-01031 message regarding insufficient privileges is displayed.

To grant SELECT access to DBA_JOBS_RUNNING:

1. Start SQL*Plus (if it is not already running) and connect as a user with dba privilege.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect dba_user/dba_password
```

Where dba_user is a user with the dba privilege and dba_pw is the password.

2. Grant SELECT access to DBA_JOBS_RUNNING to the EUL owner by typing the following at the command prompt:

```
SQL> grant select on dba_jobs_running to <EUL owner>;  
SQL> commit;
```

To confirm that the EUL owner has select access to the DBA_JOBS_RUNNING database table:

1. Start SQL*Plus (if it is not already running) and connect as the EUL owner.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect jchan/tiger
```

Where jchan is the EUL owner and tiger is the EUL owner password.

2. Describe the DBA_JOBS_RUNNING database table by typing the following at the command prompt:

```
SQL> desc DBA_JOBS_RUNNING
```

If the EUL owner has select access to DBA_JOBS_RUNNING, a list of columns in the table is displayed. Otherwise, a message indicating the object does not exist is displayed.

Predicting query performance

Predicting query performance

This chapter explains how to use query prediction in Discoverer Administrator and contains the following topics:

- "About predicting query performance"
- "How does query prediction work in Discoverer Plus?"
- "Why might query prediction not be available?"
- "About improving the speed and accuracy of query prediction"
- "How to make the necessary database views available for query prediction"
- "How to verify and change the `timed_statistics` parameter for query prediction"
- "How to analyze data tables"
- "How to verify and change the `optimizer_mode` parameter for query prediction"
- "How to reduce long query prediction times"
- "How to use query prediction with secure views"
- "How to delete old query prediction statistics"

About predicting query performance

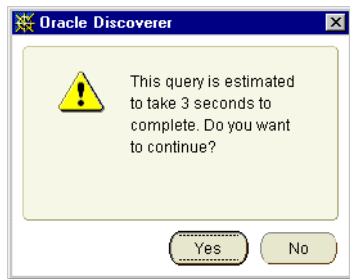
Discoverer includes functionality to predict the time required to retrieve the information in a Discoverer query. The query prediction appears before the query begins, enabling Discoverer users to decide whether or not to run the query. This is

a powerful facility that enables Discoverer users to control how long they wait for large reports.

Query Prediction uses the Cost-Based Optimizer (CBO) in the Oracle RDBMS. Therefore query prediction is not available when running against other databases.

How does query prediction work in Discoverer Plus?

Discoverer end users can specify that they be informed when a query is predicted to take longer than a defined time. A dialog displays the query prediction details and the option to cancel the query.



If the user chooses to cancel the query they can schedule the workbook for Discoverer to run the query later, for example, overnight so that the user can open the worksheet the next morning (for more information about scheduling workbooks in Discoverer Plus, see the *Oracle Application Server Discoverer Plus User's Guide*). For more information about enabling end users to schedule workbooks using Discoverer Administrator, see [Chapter 7, "Scheduling workbooks"](#).

Why might query prediction not be available?

Discoverer end users might find that query prediction is not available when running a worksheet. To see possible reasons (in Discoverer Administrator), choose Help | Database Information to display the "[Database Information dialog](#)". Query prediction might not be available for any of the following reasons:

Reason	Solution
Connection to a database that does not support query prediction (e.g. Oracle 7.1.x)	Upgrade the database.

Reason	Solution
Views required for query prediction are not available.	Refer to "How to make the necessary database views available for query prediction"
The timed-statistics parameter in init<sid>.ora is set to FALSE (the default value).	Refer to "How to verify and change the timed_statistics parameter for query prediction"
Data tables have not been analyzed.	Refer to "How to analyze data tables"
The optimizer mode parameter in init<sid>.ora is set to RULE instead of CHOOSE	Refer to "How to verify and change the optimizer_mode parameter for query prediction"

About improving the speed and accuracy of query prediction

When users have confidence in the speed and accuracy of query prediction, they will be more likely to schedule long-running queries to run later. With accurate query prediction, the load placed on the server is typically reduced and query performance is improved for all users.

To implement query prediction effectively:

- Analyze the tables that users will query using the ANALYZE TABLE command. Use the Business Areas and Folders worksheet of the EUL Data Definition workbook to display when the folders in the EUL were analyzed. For information about how to analyze data tables, see ["How to analyze data tables"](#).
- Grant your users access to the system view V\$SQL (for more information, see ["How to use query prediction with secure views"](#))

How to make the necessary database views available for query prediction

Various database views must have the SELECT privilege granted to the public user before query prediction is enabled in Discoverer. For more information, see the Oracle9i documentation.

To make the necessary views available for query prediction, for Oracle9i databases:

1. Start SQL*Plus (if it is not already running) and connect as the SYS user, or a user to which the sysdba privilege has been granted.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT sys/sys_pw@database AS SYSDBA;
```

Where `sys` is the SYS user and `sys_pw` is the SYS user password.

2. Type the following at the command prompt:

```
SQL> CONNECT username/password@database AS SYSDBA;
```

The username must have sufficient privileges to complete the following grants.

3. Grant SELECT access on the views necessary for query prediction by typing the following at the command prompt:

```
SQL> grant select on v_$session to public;
SQL> grant select on v_$sesstat to public;
SQL> grant select on v_$parameter to public;
```

Note: To grant SELECT ON V_\$PARAMETER you must be logged in as the SYS user. If you are unsure about the SYS user name and password, see your database administrator.

To make the necessary views available for query prediction, for Oracle databases earlier than Oracle9i:

1. From NT choose Start | Run.
2. Type in one of the following:
 - SVRMGRL (for Oracle 8.0)
 - SVRMGR (for Oracle8i Personal Edition)
3. When in the DBA facility, type `connect internal`
4. Grant SELECT access on the views necessary for query prediction by typing the following at the command prompt:

```
SQLDBA> grant select on v_$session to public;
SQLDBA> grant select on v_$sesstat to public;
SQLDBA> grant select on v_$parameter to public;
```

Note: To grant SELECT ON V_\$PARAMETER you must be logged in as the SYS user. If you are unsure about the SYS user name and password, see your database administrator.

How to verify and change the `timed_statistics` parameter for query prediction

The `timed_statistics` parameter found in the database view `v_$parameter` must be set to `TRUE` to enable query prediction in Discoverer.

To verify that `timed_statistics` is set to `TRUE`:

1. Start SQL*Plus (if it is not already running) and connect as the database administrator.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT dba_user/dba_pw@database;
```

Where `dba_user` is the database administrator and `dba_pw` is the database administrator password.

2. Type the following at the command prompt:

```
SQL> select value from v_$parameter where name = 'timed_statistics';
```

If the query returns the value `TRUE`, `timed_statistics` is set correctly for query prediction. If the query returns the value `FALSE`, query prediction will not be available unless you change the value of the `timed_statistics` parameter in the `init<sid>.ora` file.

To edit the `init<sid>.ora` file:

1. Locate the `INIT<SID>.ORA` file.

The `INIT<SID>.ORA` file is held in `<ORACLE_HOME>\database`. The default name of the file is `INITORCL.ORA`, where `ORCL` is the `<SID>` name.

2. Edit the file to include the following line:

```
timed_statistics = TRUE
```

3. For the change to take effect, shut down and restart the database.

How to analyze data tables

Discoverer uses the results of data table analysis for query prediction. Data table analysis generates information about the database tables (e.g. the size of a table). For more information, see the Oracle9i database documentation.

To analyze data tables:

1. Start SQL*Plus (if it is not already running) and connect as the owner of the data tables you want to analyze.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect tab_owner/tab_pw@database
```

Where tab_owner is the username and tab_pw is the password of the data table owner.

2. Type the following query:
 - For Oracle 8.0 (and later) databases:

```
SQL> analyze table <tabowner.tablename> compute statistics for all columns;
```

Notes

- If you expect the table contents to change significantly over time, analyze the data tables at regular intervals.
- If your end users find that query prediction itself takes a long time (i.e. > 10 seconds) this suggests that the tables have not been analyzed. For example, if it takes 25 seconds or so for Discoverer to display the query prediction but the query runs in less than 2 seconds.

How to verify and change the optimizer_mode parameter for query prediction

To verify that the optimizer_mode parameter is set to CHOOSE:

1. Start SQL*Plus (if it is not already running) and connect as the database administrator.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT dba_user/dba_pw@database;
```

Where dba_user is the database administrator and dba_pw is the database administrator password.

2. Type the following at the command prompt:

```
SQL> select value from v$parameter where name = 'optimizer_mode';
```

If the query returns the value `CHOOSE`, `optimizer_mode` is set correctly for query prediction. The system will use the Cost Based Optimizer if the tables have been analyzed, and the Rule Based Optimizer if the tables have not.

If the query returns the values `FIRSTROWS` or `ALLROWS`, `optimizer_mode` is also set correctly for query prediction

Both `FIRSTROWS` and `ALLROWS` force the use of the Cost Based Optimizer, even if the tables have not been analyzed.

If the query returns the value `RULE`, query prediction will not be available unless you change the value of the `optimizer_mode` parameter in the `init<sid>.ora` file.

To edit the `init<sid>.ora` file:

1. Locate `INIT<SID>.ORA`.

The `INIT<SID>.ORA` file is held in `<ORACLE_HOME>\database`. The default name of the file is `INITORCL.ORA`, where `ORCL` is the `<SID>` name.

2. Edit the file to include the following line:

```
optimizer_mode = CHOOSE
```

3. For the change to take effect, shut down and restart the database.

How to reduce long query prediction times

Discoverer uses the Cost-Based Optimizer within the query prediction process. Note that the Cost-Based Optimizer only parses the query statements, and that query execution is usually governed by the server's default optimizer mode.

In a large schema environment (e.g. Oracle Applications), the database can take a long time to parse a statement using the Cost-Based Optimizer. The query prediction process might therefore take several minutes to complete.

If users are having to wait a long time before the query prediction process is complete, consider the following three solutions:

- You could turn off query prediction using the appropriate Discoverer registry setting, as follows:

- For Discoverer Desktop

In the Windows registry, set the `DWORD` value of the `HKEY_CURRENT_USER\Software\Oracle\Discoverer9\Database\QPPEnable` registry key to 0 (zero).

If you subsequently decide to re-enable query prediction, either remove the registry key or set it to 1.

For more information about Discoverer registry settings stored in the Windows registry, see [Chapter 20, "About Discoverer Administrator and Discoverer Desktop registry settings"](#).

- For Discoverer Plus and Discoverer Viewer

Change the value of the QPPEnable registry setting in the .reg_key.dc Discoverer registry file. If QPPEnable is set to 01 00 00 00, query prediction is turned on. To turn query prediction off, set QPPEnable to 00 00 00 00.

For more information about Discoverer registry settings stored in the .reg_key.dc file, see [Chapter 20, "About Discoverer Plus and Discoverer Viewer registry settings"](#).

- You could make sure that query prediction does not enforce the use of the Cost-Based Optimizer using the appropriate Discoverer registry setting, as follows:

- For Discoverer Desktop

In the Windows registry, set the DWORD value of the HKEY_CURRENT_USER\Software\Oracle\Discoverer9\Database\QPPCBOEnforced registry key to 0 (zero).

When this registry key is set to zero, use of the Cost-based Optimizer (CBO) is not enforced and will follow the normal rules of the database server.

If you subsequently decide that you want query prediction to force the use of the Cost-Based Optimizer, either remove the registry key or set it to 1.

For more information about Discoverer registry settings stored in the Windows registry, see [Chapter 20, "About Discoverer Administrator and Discoverer Desktop registry settings"](#).

- For Discoverer Plus and Discoverer Viewer

Change the value of the QPPCBOEnforced registry setting in the .reg_key.dc Discoverer registry file. If QPPCBOEnforced is set to 01 00 00 00, query prediction will enforce the use of the cost-based optimizer. To specify that query prediction is to use the default optimizer, set QPPCBOEnforced to 00 00 00 00.

For more information about Discoverer registry settings stored in the .reg_key.dc file, see [Chapter 20, "About Discoverer Plus and Discoverer Viewer registry settings"](#).

- You could tune the way the Cost-Based Optimizer uses indexes. For example, you could adjust the following database parameters:
 - `optimizer_index_cost_adj`
 - `optimizer_index_caching`

For more information about database parameters, see the Oracle9i documentation.

How to use query prediction with secure views

Discoverer's query prediction feature uses the EXPLAIN PLAN statement to analyze queries. However, EXPLAIN PLAN cannot analyze queries against secure views, with the result that query prediction is not normally able to work in these environments. To work around this limitation, grant your users access to the system view V\$SQL.

To grant your users access to the system view V\$SQL, for Oracle9i databases:

1. Start SQL*Plus (if it is not already running) and connect as the SYS user, or a user to which the sysdba privilege has been granted.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT sys/sys_pw@database AS SYSDBA;
```

Where `sys` is the SYS user and `sys_pw` is the SYS user password.

2. Grant SELECT access on the views necessary for query prediction by typing the following at the command prompt:

```
SQL> grant select on v_$sql to public;
```

To grant your users access to the system view V\$SQL, for Oracle databases earlier than Oracle9i:

1. From NT choose Start | Run.
2. Type in one of the following:
 - `SVRMGRL` (for Oracle 8.0)
 - `SVRMGR` (for Oracle8i Personal Edition)
3. When in the DBA facility, type `connect internal`

4. Grant SELECT access on the views necessary for query prediction by typing the following at the command prompt:

```
SQLDBA> grant select on v_$sql to public;
```

Notes

- You can also grant your users access to the system view V\$SQL by running the following script in SQL*Plus:

```
<ORACLE_HOME>\discoverer\util\euvsuqpp.sql
```

You must know the SYSTEM password to use this script.

How to delete old query prediction statistics

Query prediction statistics can become obsolete for many reasons. You can delete all query prediction statistics that were created before a specified date.

To delete old query prediction statistics from the database:

1. Start SQL*Plus (if it is not already running) and connect as the EUL owner.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> connect jchan/tiger
```

Where jchan is the EUL owner's username and tiger is the EUL owner's password.

2. Run the SQL file eulstdel.sql.

For example you might type the following at the command prompt:

```
SQL> start d:\<ORACLE_HOME>\discoverer\util\eulstdel.sql
```

Where <ORACLE_HOME> is where Discoverer Administrator is installed.

A summary of the query statistics stored in the database is displayed. You are given the option to delete query statistics older than a specified number of days.

3. (optional) Enter the number of days after which query statistics will be deleted (or leave it blank if you do not want to delete any statistics).

If you do not specify a number of days, no query statistics are deleted.

Discoverer registry settings

Discoverer registry settings

This chapter describes the Discoverer registry settings, and contains the following topics:

- ["What are Discoverer registry settings?"](#)
- ["About Discoverer Plus and Discoverer Viewer registry settings"](#)
- ["About Discoverer Administrator and Discoverer Desktop registry settings"](#)
- ["Which registry settings improve Discoverer Desktop performance?"](#)
- ["What are the Discoverer Administrator and Discoverer Desktop registry settings?"](#)
- ["How to edit Discoverer Administrator and Discoverer Desktop registry settings"](#)

What are Discoverer registry settings?

Discoverer registry settings control how Discoverer behaves under certain conditions. A Discoverer registry setting comprises:

- the name of the registry setting, which is usually a character string (e.g. QPPEnable)
- the value of the registry setting (e.g. 1, 0, a character string)

By default, each registry setting is set to the most commonly required value. However, in some cases you might want to change the value of a registry setting.

The location of Discoverer registry settings depends on the Discoverer product you are using:

- Discoverer Plus and Discoverer Viewer registry settings are held in a registry file called `.reg_key.dc`
- Discoverer Administrator and Discoverer Desktop registry settings are held in the Windows registry

About Discoverer Plus and Discoverer Viewer registry settings

Discoverer Plus and Discoverer Viewer use registry settings stored in a registry file called `.reg_key.dc`. The `.reg_key.dc` file is located on the middle tier server machine in one of the following locations:

- the `\bin` directory (the default)
- the directory specified by the environment variable `DC9_REG`

When an end user changes a user preference in Discoverer Plus or Discoverer Viewer, Discoverer writes the change (for the current user) to the `.reg_key.dc` file under the following registry key:

```
\\HKEY_LOCAL_MACHINE\Software\Oracle\WebDisco 9\...
```

The username of the current user is included in the registry key.

For more information about the Discoverer Plus and Discoverer Viewer registry settings, see the *Oracle Application Server Discoverer Configuration Guide*.

About Discoverer Administrator and Discoverer Desktop registry settings

Discoverer Administrator and Discoverer Desktop use registry settings stored in the Windows registry.

When an end user changes a user preference in Discoverer Administrator or Discoverer Desktop, Discoverer writes the change (for the current user) to the Windows registry under the following registry key:

```
\\HKEY_CURRENT_USER\Software\Oracle\discoverer9\...
```

If you want to change Windows registry settings:

- take a copy of the Windows registry before making any changes

- be careful not to make any unintended modifications
- if in any doubt about what to do, contact your system administrator

Which registry settings improve Discoverer Desktop performance?

The following registry settings can affect the performance of Discoverer Desktop:

- BusinessAreaFastFetchLevel
- ObjectsAlwaysAccessible

For more information about these settings, see the appropriate entry in ["What are the Discoverer Administrator and Discoverer Desktop registry settings?"](#).

What are the Discoverer Administrator and Discoverer Desktop registry settings?

The following table contains the Discoverer Administrator and Discoverer Desktop registry settings in the Windows registry that you might need to change.

Hint: To change the value of a registry setting or to add a registry setting that is not visible in the Windows Registry Editor, see ["How to edit Discoverer Administrator and Discoverer Desktop registry settings"](#). The following table displays Discoverer Administrator and Discoverer Desktop registry settings:

Directory\Item Key Name	Description	Default/Values
Database\ArchiveCacheFlushInterval	This setting controls the interval between EUL cache flushes during Export and Import of .eex files. Used to avoid excessive memory usage during the Exp or Imp of a very large archive	Default: 1000 >=0 The number of objects that are processed between EUL cache flushes when importing and exporting .eex files

What are the Discoverer Administrator and Discoverer Desktop registry settings?

Directory\Item Key Name	Description	Default/Values
Database\BusinessAreaFastFetchLevel	<p>This setting controls the amount of pre-caching that occurs for folders and items whenever a business area is fetched.</p> <p>In general terms, the lower the value, the fewer folders and items are immediately fetched into the Navigator dialog.</p>	<p>Default: 1</p> <p>0 - No Fast Fetch</p> <p>1 - Fast Fetch the folders within each business area</p> <p>2 - Fast Fetch folders within each business area and items in Discoverer Desktop only</p> <p>3 - Fast Fetch folders within each business area and items in Discoverer Administrator only</p> <p>4 - Fast Fetch folders and items within each business area</p>
Administrator\CreateJoinInOtherBAs	<p>This setting enables you to control the extent to which Discoverer Administrator generates joins when you load or refresh a folder. By default, joins are only generated automatically between folders within the same business area. However, you can specify that joins are created automatically across business areas as well.</p> <p>This setting controls that option.</p>	<p>Default: 0</p> <p>0 - Do not generate/check joins to folders outside the current business area.</p> <p>>0 - Generate/check joins to folders outside the current business area.</p>

Directory\Item Key Name	Description	Default/Values
<p>Debug\DiagLevel</p>	<p>This setting specifies what trace information to write to the EUL trace file in <ORACLE_HOME>\discoverer\bin\dcediag.out.</p> <p>You specify one or more of the valid values and give each value an integer (e.g. OB=1). If you specify more than one value integer pair, separate each pair with a comma (e.g. OB=1, OL=3). The higher the integer, the more detailed the information.</p> <p>For example, to create trace information at a high level of granularity, you might specify the following values: OL=6,OM=5,DC=10,DCOV=10</p> <p>Other useful examples:</p> <ul style="list-style-type: none"> ■ OL=0 logs all SQL statements which fail execution on the database ■ OL=2 logs all SQL statements executed, as well as numbers of rows fetched and basic cursor lifecycle (in addition to the information logged by OL=0) ■ OL=3 logs all cursor bind variables (in addition to the information logged by OL=2) ■ DCIE=2 logs actions and elements processed by an import/export operation ■ DC=15 logs various important Discoverer actions <p>For more information, see "Using SQL files and trace files".</p>	<p>No default</p> <p>DC - General important events</p> <p>DCBL - Bulk load details</p> <p>DCIE - Import/export details</p> <p>DCOV - Metadata validation</p> <p>OB - Proces of posting data to the database when a transaction is committed</p> <p>OL - Database interactions (SQL statements, bind variables, etc)</p> <p>OM - Database connect/disconnect</p>

What are the Discoverer Administrator and Discoverer Desktop registry settings?

Directory\Item Key Name	Description	Default/Values
Database\DisableAutoOuterJoinsOnFilters	This setting toggles the behaviour of Discoverer when running queries involving an outer join with a condition (or conditions) applied. The effect of this setting is explained in an example in Chapter 9, "Creating and maintaining joins"	Default: 0 0 - Do not disable outer joins on filters 1 - disable outer joins on filters
Database\DisableMultiJoinDetection	This setting toggles multiple join path detection when creating worksheets in Desktop. If this setting is set to 1, Desktop selects all join options when creating a worksheet. If this setting is set to 0 and multiple joins exist, Desktop displays the Join Folders dialog where you choose the join(s) to use for the worksheet. Note: It is recommended that Desktop users select all available joins for Discoverer to display accurate results data.	Default: 0 1 - Disable multiple join detection. 0 - Do not disable multiple join detection.
Database\EULUpgradeForceCommitForAllSteps	This affects the commit processing and hence rollback space usage during the upgrade of a previous version EUL. If you are having problems upgrading an EUL due to limited rollback space, it is possible to commit more frequently using this setting.	0
Database\EULUpgradeRollbackSegment	If this setting is defined then it should be the name of the rollback segment that you want to be used for the duration of the upgrade. In other words, if set to "Large_RB1", a "SET TRANSACTION USE ROLLBACK SEGMENT Large_RB1" statement would be issued.	No default
Database\FormatXML	Set the value to 1 if you want the XML export file to include spaces that make the file more readable, but larger. If the value is 0 or the entry is not present, the export file will not use indentation thus reducing file size.	Default: 0 0 = not use indentation 1 = include spaces

Directory\Item Key Name	Description	Default/Values
Database\MaxNumberJoinPredicates	<p>During bulk load you have an option to create an automatic join based on column names (rather than primary/foreign keys). If you have the same table already loaded, then a join will be created that matches every column in the table. You can stop these being created by specifying the maximum number of predicates in one join using matching column names during bulk load.</p>	<p>Default: 20</p>
Database\ObjectsAlwaysAccessible	<p>By default, when Desktop displays folders and items in the Item Navigator, it validates that the tables/views they refer to exist and that the user has access to them. This setting enables you to disable this validation.</p> <p>Disabling this validation speeds up the display of folders and items in the Item Navigator. When a user executes a query, if the database objects do not exist or the user does not have access to them and this setting is set to 1, Desktop displays an error (e.g. "ORA 942 Table or View does not exist")</p>	<p>Default: 1</p> <p>0 - Enable object accessibility validation</p> <p>1 - Disable object accessibility validation</p>
Database\QPPCBOEnforced	<p>Will use cost-based optimizer if set to 1. Will use default optimizer if set to 0.</p> <p>Query Prediction needs to parse statements to obtain their cost. The cost is only available when parsing with the cost based optimizer (it is not produced if parsing with the rule based optimizer). The default behavior in Discoverer is to force the use of the cost based optimizer when parsing these statements.</p> <p>If this registry setting is set to 0 Discoverer will use the default optimizer for the database and for the tables involved in the query. In other words if the default optimizer is rule-based and the tables have not been analyzed, query prediction will not be available.</p>	<p>Default: 1</p> <p>0 - use the default query optimizer</p> <p>1 - use the cost based optimizer</p>

What are the Discoverer Administrator and Discoverer Desktop registry settings?

Directory\Item Key Name	Description	Default/Values
Database\QPPCreateNewStats	Records new statistics if set to 1. These statistics are used by Query Prediction If you set this to zero, Discoverer does not create any new statistics for query prediction.	Default: 1 0 - false 1 - true
Database\QPPEnable	Enables you to turn Query Prediction on or off. Uses Query Prediction (QPP) if set to 1.	Default: 1 0 - false 1 - true
Database\RdbFastSQLOff	This only applies to Discoverer against RDB. If set to 1, it turns off "fast sql" on the RDB server. Only use this registry setting if errors are encountered against Oracle Rdb because it might help avoid some types of problems. See Chapter 22, "Discoverer support for non-Oracle databases and Oracle Rdb" for further information about support for Oracle Rdb.	Default: 1 0 - false 1 - true
Application\ShowReadOnlyPrompt	You can set the operating system privilege for a file-based workbook to read-only. In this instance, when a user opens the workbook they get a warning message informing them that the workbook cannot be opened for read/write and to save any changes to another workbook. This registry setting enables you to switch this warning on and off.	Default: 0 0 - false 1 - true
Database\SQLFlatten	Controls whether Discoverer attempts to flatten the SQL, minimizing the use of inline views in the query SQL.	Default: 1 1 - enabled 0 - disabled
Database\SQLItemTrim	Controls whether Discoverer attempts to trim the SQL for irrelevant or unused items.	Default: 1 1 - enabled 0 - disabled

Directory\Item Key Name	Description	Default/Values
Database\SQLJoinTrim	Controls whether Discoverer attempts to remove the joins from the SQL (for more information, see " What effect do joins have on query results and query performance? ").	Default:1 1 - enabled 0 - disabled
Database\SqlTrace	<p>Creates an Oracle server trace file and all Discoverer SQL statements sent to the database server are written to the trace file.</p> <p>The default locations for the server trace files (extension .trc) are as follows: <ORACLE_HOME>\rdbms\trace (on Windows machines) \$ORACLE_HOME/log (on UNIX machines)</p> <p>Note: After the trace file is created and the required SQL statements are written to the trace file, you must reset the value of SqlTrace to the numeric value zero (0) to stop any further SQL statements being written to the file. Resetting the value of SqlTrace to zero (0) avoids unnecessary processing after the trace file is written.</p> <p>Note: The database user must have the dba privilege to use Discoverer with this setting enabled.</p> <p>For more information, see "Using SQL files and trace files".</p>	Default: 0 1 - enabled
Database\SQLType	This entry determines how SQL is displayed in the SQL Inspector dialog.	Default: 0 0 - flattened SQL, (i.e. standard Oracle format) 2 - native SQL (i.e. Discoverer SQL sent to the kernel, with inline views)

What are the Discoverer Administrator and Discoverer Desktop registry settings?

Directory\Item Key Name	Description	Default/Values
Database\SummariesAlwaysAccessible	<p>This setting displays summary folders quickly from the Summaries tab and makes them all appear to be accessible (regardless of whether they are or not). This setting avoids validation and checks (which can be slow) and enables users to display/modify summary folders quickly. Only setups with large numbers of summary folders are likely to need to use this setting.</p> <p>Note: Be aware that if you enable this setting, invalid summary folders are not shown as being invalid in the UI and the UI will not reflect this until this setting is disabled. This might cause the Discoverer manager to miss required action.</p> <p>Set this to "1" for faster display of summary folders from the Summaries tab.</p> <p>Set this to "0" to validate summary folders before displaying them at the Summaries tab.</p>	<p>Default: 0</p> <p>0:-false</p> <p>1-true</p>
Administrator\TablespaceForMVS	<p>Controls which tablespace a user points to on DB2. This registry setting is typically used when installing the End User Layer.</p>	<p>No default</p>

Directory\Item Key Name	Description	Default/Values
Administrator\UserRoleFilter	<p>Enables Discoverer Administrator to display only users and roles that start with the value used for this setting. This setting is case sensitive.</p> <p>This setting can improve the time it takes for Discoverer to display very large lists of database users and roles in the Privileges and Security dialogs. For example, if you set the value to SYS, Discoverer will only display users and roles that begin with the letters SYS (e.g. SYS, SYSMAN, SYSTEM).</p> <p>For changes to take effect, you do not have to restart Discoverer Administrator. It is sufficient to just close the Security or Privileges dialog, update the registry, and display the dialog. When this setting has no value (i.e. the default), Discoverer displays all users and roles.</p> <p>Note: This setting does not affect display of users, roles that are granted a privilege or the PUBLIC user (i.e. they are displayed regardless of this setting).</p>	No default

How to edit Discoverer Administrator and Discoverer Desktop registry settings

You edit Discoverer Administrator and Discoverer Desktop registry settings using the Windows registry editor.

How to start the Registry Editor and edit registry settings will depend on the environment you are using.

To start the Registry Editor and edit Discoverer Administrator and Discoverer Desktop registry settings in a Windows environment:

1. Choose Run... from the Windows Start menu.
2. In the Run dialog box, type `regedt32` and click OK.

3. Open the `\\HKEY_CURRENT_USER\Software\Oracle\Discoverer9\` registry key to view the Discoverer Administrator and Discoverer Desktop registry settings.
4. If you want to edit the value of a Discoverer Administrator or Discoverer Desktop registry setting shown in the Registry Editor:
 - a. Double click on the registry setting in the right-hand pane of the Registry Editor to display the DWORD Editor dialog.
 - b. Replace the existing value of the registry setting with a new value and click OK.
5. If you want to edit the value of a Discoverer Administrator or Discoverer Desktop registry setting and the registry setting is not currently shown in the Registry Editor:
 - a. Click on the key name below which the registry setting should appear.
For example, if you want to set `QPPEnable` to 0, and `QPPEnable` does not appear in the Registry Editor, click on the `\\HKEY_CURRENT_USER\Software\Oracle\Discoverer9\Database\` key to select it. For more information about the registry key for a particular registry setting, see ["What are the Discoverer Administrator and Discoverer Desktop registry settings?"](#).
 - b. Choose `Edit | Add Value` to display the Add Value dialog.
 - c. Enter the name of the Discoverer registry setting you want to add (e.g. `QPPEnable`) and click OK.
The String Editor dialog appears.
Note: Discoverer Administrator Registry settings must be in the case specified in the table in the section ["What are the Discoverer Administrator and Discoverer Desktop registry settings?"](#).
 - d. Enter the value you want the Discoverer registry setting to have (e.g. 1) and click OK.
The registry setting appears in the Registry Editor with the value you specified.
6. Choose `Registry | Exit` to close the Registry Editor.

Oracle Discoverer command line interface

Oracle Discoverer command line interface

This chapter introduces the Oracle Discoverer command line interface and contains the following topics:

- "Which Discoverer command line interfaces are available?"
- "What is the Oracle Discoverer command line interface?"
- "What are the differences between the Discoverer command line interface and the Discoverer EUL command line for Java"
- "What is a Discoverer command line interface command?"
- "What is a Discoverer command line interface command modifier?"
- "About using the Discoverer command line interface"
- "What privileges are required to run the Discoverer command line interface?"
- "Notes on using commands"
- "What command syntax conventions does this guide use?"
- "What is the syntax for commands?"
- "Examples of commands"
- "What is a command file?"
- "How to create a command file"
- "How to run a command file"
- "Examples of command files"
- "Quick guide to Discoverer Administrator commands"

- ["Discoverer Administrator command reference"](#)
- ["Discoverer Administrator command modifier reference"](#)
- ["Discoverer Desktop command reference"](#)

Which Discoverer command line interfaces are available?

Discoverer has the following command line interfaces:

- Oracle Discoverer command line interface
For more information, see ["What is the Oracle Discoverer command line interface?"](#).
- Oracle Discoverer EUL command line for Java
For more information, see the *Oracle Discoverer EUL Command Line for Java User's Guide*.

What is the Oracle Discoverer command line interface?

The Oracle Discoverer command line interface is a set of text based commands that enable you to create and manipulate Discoverer EULs created on both Oracle databases and non-Oracle databases.

Note: You use Heterogeneous Services to connect to non-Oracle databases, although the EUL is stored in the Oracle database. For more information about using non-Oracle databases, see ["Discoverer support for non-Oracle databases and Oracle Rdb"](#).

The Discoverer command line interface runs only on a Windows platform.

The Discoverer command line interface enables you to perform tasks without running the Discoverer Administrator or Discoverer Desktop graphical user interface (GUI). For example, using the Discoverer command line interface you can:

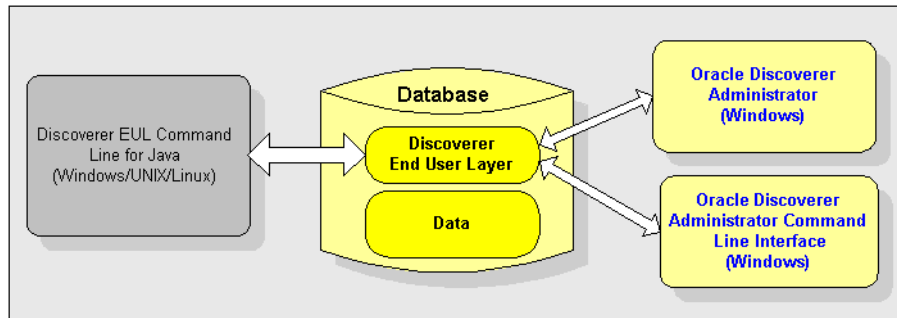
- import EUL objects
- export EUL objects
- refresh EUL objects

In addition, you can create command files that contain multiple commands (much like MS-DOS batch files or Unix script files) to perform groups of administrative tasks automatically.

The figure below shows three different ways in which you can manipulate Discoverer EULs:

- using the Discoverer EUL Command Line for Java interface on either a Windows, UNIX, or Linux machine
- using Oracle Discoverer Administrator on a Windows machine
- using the Oracle Discoverer Administrator Command Line Interface on a Windows machine

Figure 21-1 Discoverer interfaces to the Discoverer EUL



Notes:

- For a list of Discoverer command line interface commands, see "[Discoverer Administrator command reference](#)" and "[Discoverer Desktop command reference](#)".

What are the differences between the Discoverer command line interface and the Discoverer EUL command line for Java

Much of the Discoverer command line interface is compatible with the Discoverer EUL command line for Java. If you have commands and scripts written for the Discoverer command line interface, you can easily convert them to run on the Discoverer EUL command line for Java.

The Discoverer command line interface and the Discoverer EUL command line for Java differ as follows:

- The Discoverer EUL command line for Java runs on any platform. The Discoverer command line interface runs only on Windows.

Note: You do not need to have Oracle Discoverer Administrator installed to run the Discoverer EUL Command Line for Java interface.

- Discoverer EUL command line for Java commands are prefixed with `java -jar eulbuilder.jar`.
- Some Discoverer command line interface commands have minor differences in syntax (for more information, see the *Oracle Discoverer EUL Command Line for Java User's Guide*).

What is a Discoverer command line interface command?

A Discoverer command line interface command is an instruction that manipulates a Discoverer EUL in some way. For example:

- the `/CONNECT` command connects to a database using the username, password, and database name specified, for example:

```
dis51adm.exe /connect myname/mypassword@database
```

- the `/IMPORT` command imports EUL objects into the current EUL from a specified Discoverer export file (i.e. `.EEX`) file, For example to import EUL objects from the file `c:\data\sales.eex`:

```
dis51adm.exe /connect myname/mypassword@database /import c:\data\sales.eex
```

Note: Commands are not case-sensitive (for more information, see also "[Notes on using commands](#)").

What is a Discoverer command line interface command modifier?

A Discoverer command line interface command modifier is an instruction that qualifies or refines a command. For example:

- the `/LOG` command modifier creates a log file to store processing information during the execution of a command

```
dis51adm.exe /connect myname/mypassword@database /import c:\data\sales.eex /log sales_import_logfile
```

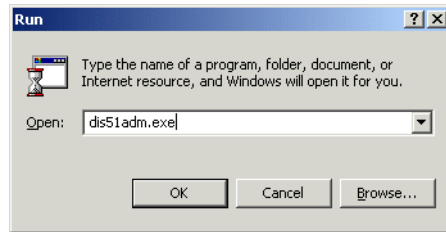
- The `/ITEM` command modifier used in conjunction with the command `/DELETE` specifies which EUL item to remove from an EUL

```
dis51adm.exe /connect myname/mypassword@database /delete /item sales.profit
```

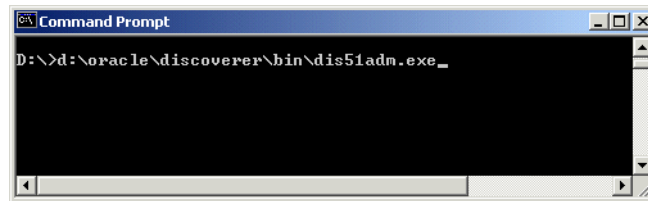
About using the Discoverer command line interface

You can run Discoverer commands in the following ways:

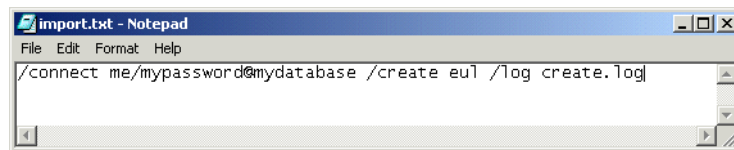
- you can enter a command directly at the Windows Run dialog (which you display by selecting Run from the Windows Start menu).



- You can open an MS-DOS window, and enter a command directly at the command prompt. For example, to display all the available commands available in Discoverer Administrator.



- You can store a series of commands in a text file (known as a command file) and run the text file as a single argument to the Discoverer executable file. For example, to run commands stored in the text file Import.txt (see the example command file in Notepad below).



To run the above command file, you might type the following in the command line:

```
dis51adm.exe /cmdfile import.txt
```

What privileges are required to run the Discoverer command line interface?

To use the Discoverer command line interface, you require the same Discoverer privileges as you do to use the Discoverer graphical user interface.

If you want to perform an operation on an EUL using the Discoverer command line interface, you must have the correct privileges. If you do not have the correct privileges, the operation will fail.

When using the Discoverer command line interface, you can explicitly specify an EUL using the modifier `/eul` (for more information, see `"/eul"`) or if you do not specify an EUL, Discoverer will identify the default EUL for the database user.

Notes on using commands

When using the Discoverer command line interface, the following rules apply:

- You can display all the commands available in Discoverer Administrator by entering the command `dis51adm.exe /?` in the Windows Run dialog.
- Commands are not case-sensitive - you can use either upper-case or lower-case characters interchangeably.
- Commands can appear in any order as long as their arguments immediately follow them in the order defined.
- Command modifiers can appear in any order as long as their arguments immediately follow them in the order defined.
- If you do not specify an object name where one is required (e.g an EUL or business area) Discoverer defaults to the Discoverer manager-owned object.
- When specifying Discoverer EUL objects, you can use either a display name or an identifier. For example, if a Discoverer folder has the display name Sales, and the identifier SALES_132388, you can specify this folder as an argument to the `/refresh_folder` command in two ways:
 - `/refresh_folder Sales`
 - `/refresh_folder SALES_132388 /identifier`

For more information about identifiers, see [Chapter 3, "What are identifiers?"](#).

When specifying an object's display name or identifier that contains a special character (e.g. a space), enclose the entire string in double quotation marks (`" "`).

For example, enter the name of the folder object Sales Figures as /folder "Sales Figures".

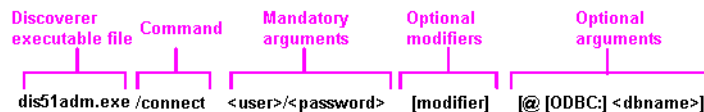
- The /REFRESH_SUMMARY command line option only works in conjunction with Oracle databases.
- When using commands, execute them one at a time. If you try to run more than one command at a time, you might cause errors.
- If you use the /connect command to bypass the "Connect dialog", arguments that begin with a slash must be enclosed in double-quotes. For example:
/connect "/[@<dbname>]"
- If you want to use the Discoverer Desktop command line interface to open a workbook from the database (using the /opendb command), the workbook name must not contain a period.

What command syntax conventions does this guide use?

This guide uses the following command syntax conventions:

- Discoverer commands and modifiers are shown in plain type.
- Mandatory command arguments are enclosed in angle brackets < >.
- Optional command arguments are enclosed in square brackets [].
- Where command arguments are separated by a pipe character (i.e. |), enter one from the list. For example, for the command '/refresh | /rename', enter either '/refresh' or '/rename'.

Figure 21–2 Command conventions used in this guide



What is the syntax for commands?

Use this syntax for the Discoverer command line interface (typed in a single line with no line breaks or carriage returns):

```
dis51adm.exe  
[/connect <user>/<password>[@[ODBC:]<dbname>]]  
/<command> [/<argument(s)>]  
[/<modifier(s)> [/<argument(s)>]]
```

Where:

- dis51adm.exe - the name of the Discoverer executable file. The name depends on the version of Discoverer you are using, as follows:
 - Discoverer 3.1 - dis31adm.exe
 - Discoverer 4.1 - dis4adm.exe
 - Discoverer 9.0.4 - dis51adm.exe
- [/connect <userid>/<passwd>[@<dbname>]] - this optional command argument enables you to bypass the "Connect dialog".
- /<command> [/<argument(s)>] - a valid Discoverer command name followed by any required arguments.
- [/<modifier(s)> [/<argument(s)>]] - one or more valid Discoverer modifiers followed by any required arguments.

Examples of commands

Example 1

To delete the Sales folder and Sum1 summary from the eul31 EUL you would use the following command:

```
dis51adm.exe /connect me/mypassword /delete /folder "Sales" /summary "Sum1"  
/eul eul31 /log del.log
```

Example 2

To refresh the Sales1 and Sales2 folders you would use the following command:

```
dis51adm.exe /connect me/mypassword /refresh_folder "Sales1, Sales2" /log  
refsum.log
```

Example 3

To create an Applications Mode EUL in the database and grant access to it you would use the following command:

```
dis51adm.exe /connect eul_owner:appsresp/appspwd /create_eul /apps_mode
```

```
/apps_grant_details apps/apps
```

What is a command file?

Command files are text files that contain one or more Discoverer commands that can be run automatically from the command line. Command files work in a similar way to MS-DOS batch files and UNIX script files.

The commands in a command file are treated as though they were entered directly on the command line. Carriage returns embedded in the text file are ignored.

A command file can in turn invoke other command files. This provides a convenient work around for the Microsoft Windows imposed limitation of restricting a command line to not more than 255 characters in length.

How to create a command file

You can create a command file using a text editor. Type the command into the text editor and save the file using the extension `.txt`.

How to run a command file

To run a command file, start the Discoverer Administrator executable (for example, `dis51adm.exe`) with the name of the command file as an argument to the `/cmdfile` command. For example, to run commands stored in the text file `Import.txt`, type:

```
dis51adm.exe /cmdfile Import.txt
```

You can also run more than one command file by repeating the `/cmdfile` command. For example, to run commands stored in the text file `Login.txt`, then commands in `Import.txt`, type:

```
dis51adm.exe /cmdfile Login.txt /cmdfile Import.txt
```

Examples of command files

Command files are a convenient way to store modular commands, which can then be used in different combinations. For example, the following three command files contain the following commands:

- `connect.txt`

contains the line `/connect me/mypassword@mydatabase`

- `create.txt`

contains the line `/create eul /log create.log`

- `delete.txt`

contains the line `/delete eul /log delete.log`

These three files can then be run from the command line in any of the following three combinations:

- `dis51adm.exe /cmdfile connect.txt`

This would be a simple connect from the command line.

- `dis51adm.exe /cmdfile connect.cmd /cmdfile create.txt`

This would connect and create an EUL for the connected user, storing all output into a log file named `create.log`.

- `dis51adm.exe /cmdfile connect.cmd /cmdfile delete.txt`

This would connect and delete the EUL owned by the connected user, storing all output into a log file named `delete.log`.

Quick guide to Discoverer Administrator commands

Use the table below to find a brief description of a Discoverer Administrator command:

Command	Description
"/?"	Display online help.
"/apps_fndnam" <foundation name>	Override connection details.
"/apps_user"	Connect as Oracle Applications user.
"/asm" <modifier(s)>	Automate summary management ASM
"/cmdfile"	Run command files
"/connect" <user-name>/<password> [@<database>]	Connect to an EUL.
"/create_eul"	Create an EUL.
"/create_eul /apps_mode"	Create an APPS EUL.
"/delete" <modifier(s)>	Delete EUL objects.
"/delete_bus_area" <business area>	Delete a business area.
"/delete_eul"	Delete an EUL.
"/export (EUL objects)" <export file> <modifier(s)>	Export EUL objects.
"/import (Business Area)" <business area>	Import a business area.
"/import (EUL objects)" <import file(s)> <modifier(s)>	Import EUL objects.
"/load" <business_area>	Load a business area.
"/refresh_bus_area" <bus area name(s)>	Refresh business areas.
"/refresh_folder" <folder name(s)>	Refresh folders.
"/refresh_summary" <summary name(s)> <bus area name>	Refresh summary folders.

Use the table below to find out which command to use for a particular task:

How to:	Use this command
Automate summary management (ASM)	<code>"/asm" <modifier(s)></code>
Connect as Oracle Apps user.	<code>"/apps_user"</code>
Connect to an EUL.	<code>"/connect" <user-name>/<password> [@<database>]</code>
Create an EUL.	<code>"/create_eul"</code>
Create an APPS EUL.	<code>"/create_eul /apps_mode"</code>
Delete a Business Area.	<code>"/delete_bus_area" <business area></code>
Delete an EUL.	<code>"/delete_eul"</code>
Delete EUL objects.	<code>"/delete" <modifier(s)></code>
Display on-line help.	<code>"/?"</code>
Export EUL objects.	<code>"/export (EUL objects)" <export file> <modifier(s)></code>
Import a Business Area.	<code>"/import (Business Area)" <business area></code>
Import EUL objects.	<code>"/import (EUL objects)" <import file(s)> <modifier(s)></code>
Load a Business Area.	<code>"/load" <business_area></code>
Override connection details.	<code>"/apps_fndnam" <foundation name></code>
Refresh Business Areas.	<code>"/refresh_bus_area" <bus area name(s)></code>
Refresh Folders.	<code>"/refresh_folder" <folder name(s)></code>
Refresh Summaries.	<code>"/refresh_summary" <summary name(s)> <bus area name></code>
Run command files	<code>"/cmdfile" <command file name(s)></code>

Discoverer Administrator command reference

This section contains detailed reference information about each command in the Discoverer Administrator command line interface. Note the following:

- commands are listed in alphabetical order
- commands can be refined by command modifiers (for more information, see "[Discoverer Administrator command modifier reference](#)")

/?

This command displays a list of Discoverer commands and their syntax and arguments.

Information	Details
■ Syntax:	"/?"
■ Modifiers:	None
■ Notes:	None
■ Restrictions:	None
■ Example:	dis51adm.exe /?

/apps_fndnam

This command overrides the values for both the fields GWYUID (including Gateway User ID password) and FNDNAM in the Connection tab of the Options dialog.

Information	Details
■ Syntax:	/apps_fndnam <foundation name>
■ Syntax:	/apps_gwyuid <gateway user id>/<password>
■ Example:	dis51adm.exe /connect appsuser:appsresp/appspwd /apps_fndnam apps /apps_gwyuid applsyspub/pub

/apps_user

This command enables you to connect to Discoverer as an Oracle Applications user.

Information	Details
■ Syntax:	/apps_user
■ Modifiers	<code>"/apps_responsibility"</code> <code>"/apps_security_group"</code>
■ Example	<pre>dis51adm.exe /connect appsuser/appspwd /apps_user /apps_responsibility "UK_Purchasing" /apps_security_group "UK_Managers"</pre> <p>Or</p> <pre>dis51adm.exe /connect appsuser:UK_Purchasing/appspwd /apps_user /apps_security_group "UK_Managers"</pre>

/asm

This command enables you to execute Discoverer's Automated Summary Management facility (ASM).

Information	Details
■ Syntax:	/asm [/asm_space <bytes> /asm_space <bytes> /asm_tablespace <tablespace name>]
■ Modifiers:	<code>"/asm_space, /asm_tablespace"</code>
■ Restrictions:	If you specify an /asm_tablespace argument, you must specify an asm_space argument.
■ Example:	<pre>dis51adm.exe /connect me/mypassword /asm /asm_space 2182 /asm_tablespace user_data</pre>

/cmdfile

This command enables you to run Discoverer commands stored in a text file automatically.

Information	Details
■ Syntax:	/cmdfile <file name>
■ Notes:	<p>To create a command file, create a text file containing one or more Discoverer commands using a standard text editor. To run the command(s) in the text file, at the command line enter:</p> <pre>dis51adm.exe /cmdfile <file name></pre> <p>For more information, see "What is a command file?".</p>

Information	Details
<ul style="list-style-type: none"> Example: 	<p>To run command(s) stored in the text file myFile, type the following command at the command line:</p> <pre>dis51adm.exe /connect me/mypassword /cmdfile myFile</pre>

/connect

This command enables you to connect to an EUL without having to enter a user name and password at the ["Connect dialog"](#).

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/connect <userid>/<passwd>[@<dbname>]</pre>
<ul style="list-style-type: none"> Modifiers: 	<pre>"/eul" <eul> "/apps_user" "/apps_responsibility" <responsibility> /apps_gwuid <gwuid> "/apps_fndnam" <fndnam> "/apps_security_group" <security_group></pre>
<ul style="list-style-type: none"> Notes: 	<p>See also Chapter 16, "Using Discoverer with Oracle Applications"</p>
<ul style="list-style-type: none"> Example: 	<pre>dis51adm.exe /connect user/password@datatbase</pre>

/create_eul

This command enables you to create a Discoverer EUL.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/create_eul</pre>

Information	Details
<ul style="list-style-type: none"> Modifiers: 	<pre> /apps_mode "/apps_grant_details" /default_tablespace "/eul_language" <language> "/log" "/overwrite" "/password" "/private" "/show_progress" /temporary_tablespace "/user" </pre>
<ul style="list-style-type: none"> Notes: 	<p>When using the <code>/create_eul</code> command, note the following:</p> <ul style="list-style-type: none"> Specify a user name and password for the owner of the new EUL. Not specifying a user name and password causes the ownership to default to your user ID. Specify whether to overwrite any existing EUL owned by the intended owner of the new EUL. Specify whether the new EUL should be public (default) or private. <p>For more information about the creation and deletion of End User Layers, see Chapter 3, "Creating and maintaining End User Layers".</p>
<ul style="list-style-type: none"> Example: 	<p>To create a private EUL for a user named, "Bob", whose password is welcome, overwriting any existing EUL and recording all log entries in a file named create.log, enter:</p> <pre> dis51adm.exe /connect me/mypassword /create_eul /overwrite /user bob /password welcome /private /log create.log </pre>

`/create_eul /apps_mode`

This command enables you to create an Oracle Applications Mode EUL using the Discoverer command line interface. This command starts Discoverer Administrator (in Oracle Applications mode), creates the Applications Mode EUL in the database, and connects you to it. The example also includes the specification of schema/password.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre> /create_eul /apps_mode </pre>

Information	Details
■ Modifiers:	<code>"/apps_grant_details"</code>
■ Example	<code>dis51adm.exe /connect system/manager /create_eul /apps_mode /apps_grant_details apps/apps</code>

/delete

This command enables you to remove EUL objects from the database. You can also remove an entire EUL using the `"/delete_eul"` command.

Information	Details
■ Syntax:	<code>/delete <modifier(s)> [/identifier]</code>
■ Modifiers:	<p>Modifiers for configuring the deletion:</p> <pre>"/log" <log file name> ["/log_only"] "/show_progress"</pre> <p>Modifiers for defining which EUL object(s) to delete:</p> <pre>/asm_policy <asm policy> "/business_area" <business area> "/ba_link" <business area> <folder> "/condition" <folder>.<condition> "/folder" <folder> "/function" <PL/SQL function> "/hierarchy" < hierarchy> "/hier_node" <hierarchy>.<hierarchy_node> "/identifier" "/item" <folder>.<item> "/item_class" <item class> "/join" <join name> "/parameter" <folder>.<parameter> "/summary" <summary> "/workbook" <workbook></pre>
■ Notes:	You can delete one or more EUL objects at a time, (see examples below). Parameters (e.g. business areas, folders) must be named explicitly, wildcards are not allowed.

Information	Details
<ul style="list-style-type: none"> Example: 	<p>To delete two Business Areas named Test BA and Final BA, residing in an EUL named eul31, and write to a log file named delba.log, enter:</p> <pre>dis51adm.exe /connect me/mypassword /delete /business_area "Test BA, Final BA" /eul eul31 /log delba.log</pre> <p>To delete a Folder named "Sales", and a Summary named "Sum1", residing in an EUL named eul31, and write to a log file named del.log, enter:</p> <pre>dis51adm.exe /connect me/mypassword /delete /folder Sales /summary Sum1 /eul eul31 /log del.log</pre>

/delete_bus_area

This command enables you to remove a Discoverer business area from the database. See also ["/delete_eul"](#) and ["/delete"](#).

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/delete_bus_area <business area></code>
<ul style="list-style-type: none"> Modifiers: 	Modifiers for configuring the deletion: "/keep_folder" "/log" <log file name> ["/log_only"] "/show_progress"
<ul style="list-style-type: none"> Notes: 	This command has been superceded by the "/delete" command, and is included for backwards compatibility. For more information about the /delete command, see "/delete" .
<ul style="list-style-type: none"> Example: 	<p>To delete the Business Areas named Test BA and Final BA, and write to a log file named delba.log, enter:</p> <pre>dis51adm.exe /connect me/mypassword /delete_bus_area "Test BA, Final BA" /log delba.log</pre>

/delete_eul

This command enables you to delete the current Discoverer EUL. You can also selectively remove individual EUL objects using the ["/delete"](#) command.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/delete_eul</code>
<ul style="list-style-type: none"> Modifiers: 	"/log" "/show_progress"

Information	Details
<ul style="list-style-type: none"> Restrictions: 	You can only delete EULs for which you are the registered owner.
<ul style="list-style-type: none"> Example: 	dis51adm.exe /connect me/mypassword /delete_eul /log "c:\my log dir\delete_eul.log"

/export (EUL objects)

This command enables you to export EUL objects to a Discoverer export file (EEX file). You can selectively export individual EUL objects (e.g. folders, business areas, functions) or entire EULs (using the /all modifier). When you import multiple files, Discoverer automatically resolves references between the files. For example, you can export the Emp folder in fileA.eex and the Dept folder in fileB.eex. If Emp and Dept are joined, the join information will actually be in both files, but neither file contains the information for both folders. If you import both files, the join will be recreated when the second file is processed.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/export <filename> [<bus_area_name>] Or /export <filename> <modifier(s)> [/identifier]</pre>
<ul style="list-style-type: none"> Modifiers: 	<pre>"/all" /asm_policy <asm policy> "/audit_info" <audit details> "/business_area" <business area> "/external_element" <filename> (this filename refers to an xml file, not the export filename) "/folder" <folder> "/function" <function> "/hierarchy" <hierarchy> "/identifier" "/item_class" <item_class> "/log" <log file name> [log_only] "/summary" <summary> /set_created_by <creator name> /set_updated_by <updated name> "/show_progress" "/workbook" <workbook> [XML_workbook] "/xmlworkbook" (takes no parameters)</pre>

Information	Details
<ul style="list-style-type: none"> Notes: 	<p><filename> - The name of the target *.EEX file. If a directory path is not specified, the target file is created in the default Discoverer folder. To override the default target directory setting, specify a directory path for the file, for example c:\data\sales.eex . Note that the directory path must be an absolute path, not a relative path.</p> <p>Wildcards are not allowed for parameters (e.g. business areas, folders) these must be named explicitly.</p> <p>[<bus_area_name>] - Use this option to export an entire business area and its contents (i.e. all EUL objects in the business area). If you only want to export the business area definition and metadata for the contents, use the /business_area modifier.</p> <p>When you export a business area using the /business_area modifier, Discoverer exports only business area definitions (e.g. business area name and description) and links to the folders in the business area. Discoverer will export the folders and workbooks only when they are specified by name.</p> <p><modifiers> - When specifying parameters, you can use either their Display Name or Identifier.</p> <p>To maintain data relationships, you must also export linked (or joined) objects.</p>
<ul style="list-style-type: none"> Example: 	<p>To export two business areas named Test BA and Final BA, residing in an EUL named eul31, into a file named export.eex, and write to a log file named export.log, enter:</p> <pre>dis51adm.exe /connect me/mypassword /export export.eex /business_area "Test BA" /business_area "Final BA" /all /eul eul41 /log import.log</pre>

/import (Business Area)

This command enables you to import a Discoverer business area into the database from an EEX file. For more information about selectively importing Discoverer EUL objects, see ["/import \(EUL objects\)"](#).

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/import <file name></pre>
<ul style="list-style-type: none"> Modifiers: 	<pre>"/log" <log file name> [log_only] "/rename" <rename-policy> "/show_progress"</pre>

Information	Details
■ Notes:	This command has been superseded by the <code>/import (EUL objects)</code> command, and is included for backwards compatibility. For more information about the <code>/import</code> command, see " /import (EUL objects) ".
■ Example:	To import the business area in the file <code>myBA.eex</code> , and write to a log file named <code>impba.log</code> , enter: <pre>dis51adm.exe /connect me/mypassword /import myBA.eex /log impba.log</pre>

/import (EUL objects)

This command enables you to import EUL objects from one or more Discoverer export files (EEX files). Discoverer export files are created using the `/export` command, and contain EUL objects (e.g. folders, business areas, functions, or an entire EUL).

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/import <"sourcefilename1.eex sourcefilename2.eex etc."> <modifier(s)> [/identifier]</pre>
<ul style="list-style-type: none"> Modifiers: 	<pre>"/eul"<EUL> "/identifier" "/keep_format_properties" "/log" <log file name> [log_only] /preserve_workbook_owner "/refresh" "/rename" "/show_progress"</pre>
<ul style="list-style-type: none"> Notes: 	<p><source filename(s)> - the name(s) of the source *.EEX file(s). You must specify the full path name for the file (e.g. 'c:\data\sales.eex'). Note that the directory path must be an absolute path, not a relative path.</p> <p>Wildcards are not allowed for parameters (e.g. business areas, folders) these must be named explicitly.</p> <p>Where multiple files are being imported, all files must be encapsulated in one pair double quotes and separated by spaces (for example, see syntax above).</p>
<ul style="list-style-type: none"> Example 	<pre>dis51adm.exe /connect <userid>/<password>@<dbalias> /import "file1.eex file2.eex"</pre>

/load

This enables you to bulk load data from a database into a Discoverer business area.

Information	Details
<ul style="list-style-type: none"> ■ Syntax: 	/load <bus_area>
<ul style="list-style-type: none"> ■ Modifiers: 	<pre>"/aggregate" <aggregate> "/capitalize" "/date_hierarchy" <date_hier> "/db_link" <db_link> "/description" <descrip> "/eul" <eul_name> "/insert_blanks" "/join" <join_policy> "/log" <log_file> "/lov" <lov> "/object" <obj_name> "/remove_prefix" "/show_progress" "/sort_folders" /sort_items "/source" <source> "/user" <user_id></pre>

Information	Details
<ul style="list-style-type: none"> ■ Notes: 	<p>When using the /load command, note the following:</p> <ul style="list-style-type: none"> ■ Specify the source of the data (default is the current database server). If you are loading data from an EUL Gateway, the source name must exactly match the EUL Gateway name. ■ Specify an EUL in which to load the objects (default is the Discoverer manager's own EUL). If you specify the EUL, you must have access privileges to the named EUL in order for the operation to succeed. . ■ Specify an alternative database link from which to fetch the data (default is the current connection). ■ Filter the load by schema name (/user) (default is that no filter is used). ■ Filter the load by object name (default is that no filter is used). ■ Specify pre-formatting of the data with respect to capitalization, prefixes and blank spaces (default is that no pre-formatting is done). ■ Specify a date hierarchy (default is the Discoverer default date hierarchy). ■ Specify which datatypes should have an associated list of values (default is that datatypes have no associated list of values). ■ Specify the default aggregate to use on data points (default is SUM). ■ Provide a description for the new Business Area (default is NULL). ■ Specify the join policy (default is primary key) and a log file. ■ Note: When doing a bulk load from an Oracle9i database, constraints on views are also considered when Discoverer creates joins.

Information	Details
<ul style="list-style-type: none"> Example: 	<p>You want to bulk load into an EUL named eul31 from an Oracle Designer source on the current connection, creating a new business area named Test BA that:</p> <ul style="list-style-type: none"> contains tables matching the pattern test% owned by user Bob pre-formats columns to remove prefixes, remove blanks, and capitalize them contains no date hierarchy contains lists of values for CHAR, INTEGER, and DECIMAL, using AVG as the aggregate writes to a log file named load.log <p>To perform the above bulk load, enter:</p> <pre>dis51adm.exe /connect me/mypassword /load "Test BA" /source "Designer 6i - bobsworkarea" /eul eul31 /user bob /object test% /capitalize /remove_prefix /replace_ blanks /date_hierarchy "" /lov "CHAR, INTEGER, DECIMAL" /aggregate AVG /log load.log /description "Test BA"</pre>

/refresh_bus_area

This command enables you to refresh one or more Discoverer Business Areas, by retrieving an up-to-date EUL structure from the database.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/refresh_bus_area <bus_area></pre>
<ul style="list-style-type: none"> Modifiers: 	<pre>"/db_link" "/eul" "/log" "/schema" "/source" "/show_progress"</pre>

Information	Details
<ul style="list-style-type: none"> Notes: 	<p>When using the <code>/refresh_bus_area</code>, command, note the following:</p> <ul style="list-style-type: none"> Specify the data source from which to refresh the named Business Area(s). Specify an EUL in which to find the business area(s) to refresh. The Discoverer manager's own EUL is the default. If you specify the EUL, you must have access privileges to the named EUL in order for the operation to succeed. Filter the refresh by schema name. By default, no filter is used. Specify a log file.
<ul style="list-style-type: none"> Example: 	<p>To refresh two Business Areas named Test BA and Final BA that reside in an EUL named eul31, from an Oracle Designer source on the current connection that contains tables matching the pattern test% owned by user Bob, and summarize information in a log file named refba.log, enter:</p> <pre>dis51adm.exe /connect me/mypassword /refresh_bus_area "Test BA, Final BA" /source "Designer 6i - bobsworkarea" /eul eul31 /user bob /log refba.log</pre>

`/refresh_folder`

This command enables you to refresh one or more Discoverer folders. The query on which the folder is based is re-run in order to retrieve up-to-date data.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/refresh_folder <folder></code>
<ul style="list-style-type: none"> Modifiers: 	<pre>"/log" "/show_progress" "/source" "/user" <username></pre>
<ul style="list-style-type: none"> Notes: 	<p>When using the <code>/refresh_folder</code> command, note the following:</p> <ul style="list-style-type: none"> The Discoverer manager's own EUL is the default EUL for the search. Specify a log file path (optional). A status message indicating the success or failure of the operation will be output to the specified log file path, or the default log file if one is not specified.

Information	Details
<ul style="list-style-type: none"> Example: 	<p>To refresh two folders named Sales1 and Sales2, residing in a Business Area named Test BA, found in an EUL named eul31, and write to a log file named reffol.log, enter:</p> <pre>dis51adm.exe /connect me/mypassword /refresh_folder "Sales1, Sales2" /log reffol.log</pre>

/refresh_summary

This command enables you to refresh one or more Discoverer Summary folders. The query on which the summary is based is re-run in order to retrieve up-to-date data.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/refresh_summary <summary> <bus_area></pre>
<ul style="list-style-type: none"> Modifiers: 	<pre>"/log" "/show_progress"</pre>
<ul style="list-style-type: none"> Notes: 	<p>When using the /refresh_summary command, note the following:</p> <ul style="list-style-type: none"> Specify in which EUL the Business Area can be found. The Discoverer manager's own EUL is the default EUL for the search. If you specify the EUL, you must have access privileges to the named EUL in order for the operation to succeed. It is necessary to name at least one summary folder and explicitly name the Business Area in which the summary resides. Specify a log file path (optional). A status message indicating the success or failure of the operation will be output to the specified log file path, or the default log file if one was not specified.
<ul style="list-style-type: none"> Example: 	<p>To refresh two summaries named Summary1 and Summary2, residing in a Business Area named Test BA, found in an EUL named eul31, and write to a log file named refsum.log, enter:</p> <pre>dis51adm.exe /connect me/mypassword /refresh_summary "Summary1, Summary2" "Test BA" /log refsum.log /eul eul31</pre>

Discoverer Administrator command modifier reference

This section contains detailed reference information about optional Discoverer Administrator command modifiers available in the Discoverer command line interface. Command modifiers are used to refine or qualify commands. Note the following:

- Command modifiers are listed in alphabetical order.
- For more information about commands, see "[Discoverer Administrator command reference](#)".

/aggregate

The `/aggregate` modifier enables you to specify the default aggregate to be used by a command.

Information	Details
■ Syntax:	<code>/aggregate <SUM MAX MIN COUNT AVG DETAIL></code>

/all

The `/all` modifier enables you to select every object in an EUL for import, export or deletion.

Information	Details
■ Syntax:	<code>/all</code>

/apps_grant_details

The modifier `/apps_grant_details` enables you to specify an Oracle Applications schema and password when creating an Oracle Applications mode EUL. For example, to specify the Oracle Applications foundation name and password (`<fndnam>/<password>`).

Information	Details
■ Syntax:	<code>/apps_grant_details <schema>/<password></code>

/apps_responsibility

The modifier `/apps_responsibility` enables you to specify an Oracle Applications responsibility when connecting as an Oracle Applications database user. This can also be included immediately following a colon (`:`) placed after the Oracle Applications user name but before the password.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/apps_responsibility <"Oracle Applications responsibility name"></code>

/apps_security_group

The `/apps_security_group` modifier enables you to specify an Oracle Applications security group when connecting as an Oracle Applications database user.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/apps_security_group <"Oracle Applications security group name"></code>

/asm_space, /asm_tablespace

The `/asm_tablespace` modifier ignores any tablespace value set in the ASM policy and uses this tablespace constraint instead. The `/asm_space` modifier ignores any space value set in the ASM policy and uses this space constraint instead. The following are valid combinations of tablespace and space values:

- No command line modifiers - The ASM policy tablespace and space will be used.
- `/asm_space` - The ASM policy tablespace will be used with the specified value of space.
- `/asm_tablespace /asm_space` - The specified values of tablespace and space will be used. An error will be raised if you specify an invalid tablespace.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/asm [/asm_space <bytes> /asm_space <bytes> /asm_tablespace <tablespace name>]</code>

/audit_info

The /audit_info modifier enables you to export audit fields with every object, (Created By, Created Date, Updated By, Updated Date). You can override the Created By and Updated By fields using the additional modifiers /set_created_by and /set_updated_by.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/audit_info [:/set_created_by<name of creator>] [:/set_updated_by<name of updater>]</pre>

/ba_link

The /ba_link modifier enables you to specify a business area and folder for deletion.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/ba_link <business area>.<folder></pre>

/business_area

The /business_area modifier enables you to specify a business area for import, export or deletion

Information	Details
<ul style="list-style-type: none"> Syntax: 	<pre>/business_area <business area></pre>
<ul style="list-style-type: none"> Notes: 	<p>When used with the /export command, this modifier only exports the business area definition (e.g. business area name and description).</p> <p>If you want to export the entire business area (i.e. including folders, item classes, hierarchies etc), using /all modifier also.</p>

/capitalize

The /capitalize modifier enables you to request that folder names have initial capital letters when they are generated from their respective column names during a bulk load.

Information	Details
■ Syntax:	/capitalize

/condition

The /condition modifier enables you to specify a condition for deletion.

Information	Details
■ Syntax:	/condition <condition>

/date_hierarchy

The /date_hierarchy modifier enables you to specify the date hierarchy to be used during a bulk load.

Information	Details
■ Syntax:	/date_hierarchy <date_hier>
■ Notes:	Any valid date hierarchy name or "". If you set <date_hier> to "", Discoverer Administrator will not create a hierarchy for dates during bulk load.

/db_link

The /db_link modifier enables you to specify the database link to be used by a command.

Information	Details
■ Syntax:	/db_link <db_link>
■ Notes:	<db_link> can be any valid database link.

/description

The /description modifier enables you to specify a description for an object.

Information	Details
■ Syntax:	/description <description>

Information	Details
■ Notes:	<description> can be any string.

/eul

The `/eul` modifier enables you to specify an EUL on which to run a command. You must have access privileges to the specified EUL. If not specified, the default EUL for the database user is used.

Information	Details
■ Syntax:	<code>/eul <EUL></code>
■ Notes:	<EUL> must be the name of a valid EUL.

Note that this does not change the default EUL for the user.

/eul_language

The `/eul_language` modifier used (currently by Oracle Applications) with the `/create_eul` command, enables you to specify a language for the EUL

Information	Details
■ Syntax:	<code>/eul_language <language></code>

/external_element

The `/external_element` modifier is used only with the `/export` command. The `external_element` modifier enables you to place XML code from a specified file at the top of the export file.

Information	Details
■ Syntax:	<code>/external_element <filename></code>

Information	Details
<ul style="list-style-type: none"> Notes: 	<p>To use this modifier you enter the XML (that you want to place at the top of the export file) into a separate file then include this filename as the <filename> argument.</p> <p>The /external_element modifier can be used multiple times in the same export operation (see example below).</p> <p><filename> is the name of the file containing the xml that you want to include in the .eex file.</p>
<ul style="list-style-type: none"> Example 	<pre>dis51adm.exe /connect me/mypassword /export myBA.eex bus_area1 /external_element custom1.xml /external_ element custom2.xml</pre> <p>This places the xml from the files custom1.xml and custom2.xml into the top of the export file myBA.eex .</p>

/folder

The /folder modifier enables you to specify a folder for import, export or deletion.

Information	Details
<ul style="list-style-type: none"> Syntax: 	/folder <folder>

/function

The /function modifier enables you to specify a function for import, export or deletion.

Information	Details
<ul style="list-style-type: none"> Syntax: 	/function <PL/SQL function>

/hier_node

The /hier_node modifier enables you to specify a node in a hierarchy for deletion.

Information	Details
<ul style="list-style-type: none"> Syntax: 	/hier_node <hierarchy>.<hierarchy node>

/hierarchy

The /hierarchy modifier enables you to specify a hierarchy.

Information	Details
■ Syntax:	<code>/hierarchy <hierarchy></code>

/identifier

The `/identifier` modifier enables you to specify EUL objects by identifier, rather than by display name. If not specified, the object is identified by display name by default.

Information	Details
■ Syntax:	<code>/identifier <identifier></code>

/insert_blanks

The `/insert_blanks` modifier enables you to request that folder names have spaces instead of underscore characters when they are generated from their respective column names during a bulk load.

Information	Details
■ Syntax:	<code>/insert_blanks</code>

/item

The `/item` modifier enables you to specify an item for deletion.

Information	Details
■ Syntax:	<code>/item <item></code>

/item_class

The `/item_class` modifier enables you to specify an item class for import, export or deletion.

Information	Details
■ Syntax:	<code>/item_class <item class></code>

/join

The `/join` modifier has two applications depending on which command you use it with:

- Used with the `/load` command, the join modifier enables you to specify how Discoverer Administrator creates joins during a bulk load.
- Used with the `/delete` command, the `/join` modifier enables you to remove a specific join.

Information	Details
<ul style="list-style-type: none"> ■ Syntax: 	Used with the <code>/load</code> command: <code>/join <NONE COLUMN_NAME PRIMARY_KEY></code> Used with the <code>/delete</code> command: <code>/join <join name></code>

/keep_folder

The `/keep_folder` modifier enables you to leave the folders in place when deleting a business area. If not specified, the folders are removed along with the business area.

Information	Details
<ul style="list-style-type: none"> ■ Syntax: 	<code>/keep_folder</code>

/keep_format_properties

The `/keep_format_properties` modifier enables you to keep existing format properties (e.g. display names, descriptions) on import. The default is to change format properties.

Information	Details
<ul style="list-style-type: none"> ■ Syntax: 	<code>/keep_format_properties</code>

/log

The `/log` modifier enables you to specify a name for the log file that stores command status messages. After each command is executed, Discoverer Administrator writes a status message indicating whether the command was

successful. You can override the name and location of the log file using the `/log` modifier.

Information	Details
■ Syntax:	<code>/log <filename></code>
■ Notes:	Any valid filename (dependent on the operating system).

`/log_only`

The `/log_only` modifier enables you to simulate a command and generate a log, without changing your data. This option enables you to check for errors and exceptions before changing your data.

Information	Details
■ Syntax:	<code>/log <filename> [/log_only]</code>
■ Notes:	Any valid filename (dependent on the operating system). The optional <code>log_only</code> argument enables you to simulate an import and generate a log, without importing the data. This option enables you to check for import errors before changing your data

`/lov`

The `/lov` modifier enables you to specify the data types for which a list of values should be generated during a bulk load.

Information	Details
■ Syntax:	<code>/lov [CHAR DATE DECIMAL INTEGER KEY]</code>

`/object`

The `/object` modifier enables you to specify an object for bulk load, import, export or deletion.

Information	Details
■ Syntax:	<code>/object <mask></code>
■ Notes:	Any valid object name. You can use wildcard characters.

/overwrite

The `/overwrite` modifier enables you to overwrite an existing EUL owned by the intended owner. If omitted, the default is to not overwrite an existing EUL.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/overwrite</code>

/parameter

The `/parameter` modifier enables you to specify a parameter for deletion. When specifying parameters, you can use either their Display Name or Identifier.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/parameter <folder>.<parameter></code>

/password

The `/password` modifier enables you to specify the password to be used by the operation.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/password <password></code>
<ul style="list-style-type: none"> Notes: 	Any valid password associated with the value specified by the user.

/private

When you create an EUL, the `/private` modifier enables you to define its status as private to the Discoverer manager. If omitted, the status defaults to 'public'.

Information	Details
<ul style="list-style-type: none"> Syntax: 	<code>/private</code>

/refresh

The /refresh modifier enables you to merge imported objects with existing objects. By default, merged objects are matched on display name. Use the `"/identifier"` modifier to match on identifier.

Information	Details
<ul style="list-style-type: none"> Syntax: 	/refresh

/remove_prefix

The /remove_prefix modifier enables you to request that item names do not include the column name prefix when they are generated from their respective column names during a bulk load.

Information	Details
<ul style="list-style-type: none"> Syntax: 	/remove_prefix
<ul style="list-style-type: none"> Example: 	Columns: EMP_EMPNO EMP_ENAME Items: EMPNO ENAME

/rename

The /rename modifier enables you to specify which objects are renamed when importing objects that match existing objects.

Information	Details
<ul style="list-style-type: none"> Syntax: 	/rename <NEW OLD NONE>
<ul style="list-style-type: none"> Notes: 	NEW - rename the imported objects that match the existing objects. OLD - rename the existing objects that match the imported objects. NONE - abort the operation without importing the objects.

/schema

The /schema modifier enables you to specify a schema (user) for the operation.

Information	Details
▪ Syntax:	/schema <schema>

/show_progress

The /show_progress modifier enables you to monitor a command in operation.

Information	Details
▪ Syntax:	/show_progress

/sort_folders

The /sort_folders modifier enables you to specify that Discoverer will alphabetically sort folders during a bulk load.

Information	Details
▪ Syntax:	/sort_folders <ON OFF>
▪ Notes:	ON is the default

/sort_items

The /sort_items modifier enables you to specify that Discoverer will alphabetically sort items during a bulk load.

Information	Details
▪ Syntax:	/sort_items <ON OFF>
▪ Notes:	OFF is the default

/source

The /source modifier enables you to specify the source for the operation.

Information	Details
■ Syntax:	<code>/source <server gateway></code>
■ Notes:	<p><code><server></code> is the name of a native Oracle database</p> <p><code><gateway></code> is the name of an Oracle Designer object or other gateway.</p> <p>The gateway name must exactly match the gateway name displayed in the Load Wizard. In the case of Oracle Designer, specify "Designer 6i - <workarea name>" (if you are using a version of Oracle Designer prior to Oracle Designer 6i, simply specify "Oracle Designer repository").</p>

/summary

The `/summary` modifier enables you to specify a summary for import, export or deletion.

Information	Details
■ Syntax:	<code>/summary <summary></code>

/user

The `/user` modifier enables you to specify the user ID to be used for the operation.

Information	Details
■ Syntax:	<code>/user <user_id></code>
■ Notes:	Any valid user ID.

/workbook

The `/workbook` modifier enables you to specify a workbook for import, export or deletion.

Information	Details
■ Syntax:	<code>/workbook <workbook></code>

/xmlworkbook

The `/xmlworkbook` modifier (used with the `/export` command) forces all workbooks to be exported both in XML format and binary large object (BLOB)

format. The `/xmlworkbook` modifier enables you to view exported workbooks in an XML browser.

Information	Details
■ Syntax:	<code>/xmlworkbook</code> (takes no parameters)

Discoverer Desktop command reference

This section contains detailed reference information about each command in the Discoverer Desktop command line interface. Note that commands are listed in alphabetical order.

`/?`

This command displays a list of Discoverer Desktop commands.

Information	Details
■ Syntax:	<code>/?</code>
■ Modifiers:	None
■ Notes:	None
■ Restrictions:	None
■ Example:	<code>dis5usr.exe /?</code>

`/batch`

This command enables you to run workbooks without delaying the processing of subsequent workbooks.

Information	Details
■ Syntax:	<code>/batch</code>
■ Modifiers:	None
■ Notes:	Causes the UI not to wait for end user input before continuing. This is intended to allow subsequent workbooks/sheets to be processed even if an earlier one fails.
■ Restrictions:	None

/connect

This command enables you to connect directly to Discoverer Desktop without having to use the Connect dialog.

Information	Details
■ Syntax:	/connect <username>/<password> [@<database>]
■ Modifiers:	None
■ Notes:	Connects you to the database with the specified username and password. This command skips the Connect dialog provided that the username/password@database information is correct.
■ Restrictions:	If the login details are insufficient to connect to the database Desktop displays the Connect dialog with the information you specified in the Discoverer command line interface. For example if the Discoverer command line interface specifies: username@dbname Discoverer displays the Connect dialog, the user field displays 'username', the database field displays 'dbname' and the password field is empty.
■ Example:	dis5usr.exe /connect jchan/jchan@dbname

/export

This command enables you to export the results of a workbook to a specified file.

Information	Details
■ Syntax:	/export <format> <export-file>
■ Modifiers:	None
■ Notes:	Exports the results of a workbook to the specified file(e.g. wks, sylk).
■ Restrictions:	If the end user does not specify a sheet on the Discoverer command line interface, only the active sheet is exported to the file. If the end user specifies a sheet in the Discoverer command line interface, only that sheet is exported. If the end user specifies all sheets in the Discoverer command line interface, each is exported to a separate file, named <file> <sheet-name>.<ext>
■ Example:	dis5usr.exe /export wks worksheet2.wks

/open

This command enables you to open a workbook from a .dis file.

Information	Details
■ Syntax:	/open <file-workbook>
■ Modifiers:	None
■ Example:	dis5usr.exe /open workbook1.dis

/opendb

This command enables you to open a workbook from the database.

Information	Details
■ Syntax:	/opendb <db-workbook>
■ Modifiers:	None
■ Example:	dis5usr.exe /opendb workbook1.dis

/parameter

This command enables you to set a specified parameter to a specified value.

Information	Details
■ Syntax:	/parameter <parameter name> <parameter value>
■ Modifiers:	None
■ Restrictions:	If the end user does not specify a value for a parameter in a workbook then Discoverer uses a default value.
■ Example:	dis5usr.exe /parameter year 2001

/p

This command enables you to print a workbook from a file to a default printer.

Information	Details
■ Syntax:	/p <file>

Information	Details
■ Modifiers:	None
■ Notes:	Print options are saved as part of the workbook.

/pt

This command enables you to print a workbook from a file to a specified printer with specified printer driver and port.

Information	Details
■ Syntax:	<code>/pt <file> <printer> <driver> <port></code>
■ Modifiers:	None

/savedb

This command enables you to copy a workbook from the filesystem to the database.

Information	Details
■ Syntax:	<code>/savedb <filesystem-workbook></code>
■ Modifiers:	<code>/batch</code>
■ Notes:	Copies .dis files from the filesystem and saves them in the database.

Information	Details
<ul style="list-style-type: none"> Example: 	<p>Copy the workbook sales.dis from the filesystem to the database as follows:</p> <pre>dis5usr.exe /connect user/password@database /savedb "c:\myworkbooks\sales.dis"</pre> <p>Copy the workbook sales.dis from the filesystem to the database but do not display Discoverer Desktop, use the /batch modifier as follows:</p> <pre>dis5usr.exe /connect user/password@database /savedb "c:\myworkbooks\sales.dis" /batch</pre> <p>Copy multiple workbooks (e.g. 2001_sales.dis, 2002_sales.dis and 2003_sales.dis) from the filesystem to the database as follows:</p> <pre>dis5usr.exe /connect user/password@database /savedb "c:\myworkbooks\2001_sales.dis" /savedb "c:\myworkbooks\2002_sales.dis" /savedb "c:\myworkbooks\2003_sales.dis"</pre> <p>Hint: The multiple workbooks example above is particularly useful if you are moving from Discoverer Desktop to Discoverer Plus, and you need to copy lots of workbooks from the filesystem to the database.</p>

/sheet

This command enables you execute a query for the specified sheet(s).

Information	Details
<ul style="list-style-type: none"> Syntax: 	/sheet {<sheet-name> <sheet-number> ALL}
<ul style="list-style-type: none"> Modifiers: 	None
<ul style="list-style-type: none"> Notes: 	<p>Discoverer executes a query for :</p> <ul style="list-style-type: none"> the specified sheet number <sheet-number> the sheet name <sheet-name> all sheets (ALL).

Discoverer support for non-Oracle databases and Oracle Rdb

Discoverer support for non-Oracle databases and Oracle Rdb

This chapter contains information about using Discoverer with non-Oracle databases and Oracle Rdb, and contains the following topics:

- ["What are Heterogeneous Services?"](#)
- ["About using generic connectivity to connect to non-Oracle databases"](#)
- ["About using the Transparent Gateway to connect to non-Oracle databases"](#)
- ["About Discoverer support for Oracle Rdb"](#)

What are Heterogeneous Services?

Heterogeneous Services are the common architecture and administration mechanisms provided with the Oracle database to enable you to connect to non-Oracle databases.

You connect to non-Oracle databases using Heterogeneous Services in two ways:

- using generic connectivity (for more information, see ["About using generic connectivity to connect to non-Oracle databases"](#))
- using the Transparent Gateway (for more information, see ["About using the Transparent Gateway to connect to non-Oracle databases"](#))

For more information about Heterogeneous Services, see the *Oracle9i Heterogeneous Connectivity Administrator's Guide*.

About using generic connectivity to connect to non-Oracle databases

Generic connectivity is one of the mechanisms supported by the Oracle database Heterogeneous Services feature for accessing non-Oracle databases.

Discoverer users can use generic connectivity to access ODBC or OLE DB (object linking and embedding database) databases.

The non-Oracle database must comply sufficiently with the ODBC standard (for more information about ODBC and OLE DB connectivity requirements, see the *Oracle9i Heterogeneous Connectivity Administrator's Guide*).

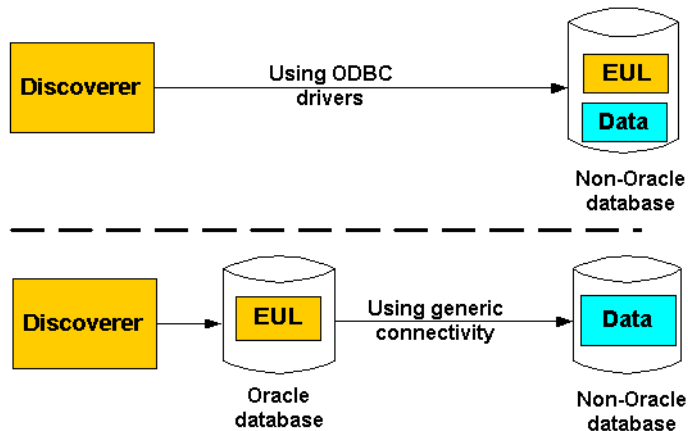
This section contains the following topics:

- ["What is the difference between using generic connectivity and ODBC drivers to connect to non-Oracle databases?"](#)
- ["What are the advantages of using generic connectivity?"](#)
- ["How to set up generic connectivity for Discoverer using Enterprise Manager"](#)
- ["How to migrate an EUL from a non-Oracle database \(accessed using native ODBC drivers\) to an Oracle database \(to support generic connectivity\)"](#)

What is the difference between using generic connectivity and ODBC drivers to connect to non-Oracle databases?

In previous versions of Discoverer, users could connect to non-Oracle databases using ODBC drivers. The major difference between using ODBC drivers to connect to a non-Oracle database and using the Oracle database generic connectivity feature is the location of the EUL, as follows:

- with ODBC drivers, the EUL is stored in the non-Oracle database
- with generic connectivity, the EUL is stored in the Oracle database

Figure 22–1 EUL location using ODBC drivers versus using generic connectivity

The above diagram illustrates the following:

- when Discoverer connects to a non-Oracle database using ODBC drivers, both the EUL and the data reside on the non-Oracle database
- when Discoverer connects to a non-Oracle database using generic connectivity, the data continues to reside on the non-Oracle database but the EUL must be located on the Oracle database

Discoverer no longer supports the use of native ODBC drivers to connect to non-Oracle databases. You must now use generic connectivity to retrieve data from the non-Oracle database. In other words, the EUL must be stored in an Oracle database. To find out how to move an EUL from a non-Oracle database (accessed using native ODBC drivers) to an Oracle database (to support generic connectivity)".

What are the advantages of using generic connectivity?

Using Discoverer with the Oracle database's generic connectivity feature rather than native ODBC drivers to connect to a non-Oracle database has the following advantages:

- enables connections to a greater number of ODBC databases
- Generic connectivity provides access to any ODBC database that is compliant with the ODBC standard. Compliance varies with both databases and ODBC drivers.

- enables Discoverer end users to query data from multiple different databases simultaneously

For example, you can create a single business area with folders based on tables held in Sybase, DB2 and Oracle databases. An end user query can return data joined across multiple databases.

- enables query prediction with ODBC data

Discoverer's query prediction uses query statistics that are generated when end users run queries and which are saved in the EUL. Because the EUL is in the Oracle database, Discoverer is able to carry out query prediction for the ODBC data on the Oracle database.

- enables batch support for scheduling workbooks

Discoverer uses the batch scheduler in the Oracle database. Because the EUL is in the Oracle database, Discoverer is able to schedule workbooks with ODBC data.

- enables you to apply Oracle analytical functions (and other Oracle functions) to data provided from an ODBC database

Because the data is brought into the Oracle database you can apply the full set of Oracle functions to the data, instead of being restricted to the functions supported by the non-Oracle database.

How to set up generic connectivity for Discoverer using Enterprise Manager

Before you can use generic connectivity, you must configure the Oracle database to support generic connectivity.

Note: You should work with your database administrator to set up generic connectivity for Discoverer. However, if you want to use the Enterprise Manager console to set up generic connectivity for Discoverer, you can use the following example (using Enterprise Manager version 2.2).

To set up generic connectivity for Discoverer using Enterprise Manager:

1. To set the Global Names parameter to FALSE, from the Windows Start menu, choose Programs | Oracle Home | Enterprise Manager Console to display the Enterprise Manager Console Login dialog.

Note: To set the Global Names parameter for Oracle 8.1.7 (or later) Enterprise Edition databases, you change the `global_names` parameter to `false` in the `init.ora` file as follows, then go to step 9:

- a. Open the init.ora file in a text editor.
Work with your database administrator to locate and edit the init.ora file.
- b. Change the global_names parameter to false.
- c. Close and save the init.ora file.

The init.ora file is the initialization file that the Oracle database uses when you start up the Oracle database.

2. Select the **Launch standalone** radio button and click OK to display the Enterprise Manager console.
3. In the left hand pane of the Enterprise Manager Console, expand the tree by clicking the plus (+) symbols, choosing Database | Instance | Configuration.
The Enterprise Manager console displays the General tab.
4. Click All Initialization Parameters to display the Edit Database Configuration page.
5. Select the **SPFile** radio button to display the list of SPFile parameters.
The SPFile parameters are the parameters that are stored in the server side persistent file (spfile).
6. Scroll down to the Global Names parameter, click the **Value** field and set it to FALSE.
7. Click Apply.
Enterprise Manager displays a message confirming that the parameters have changed.
8. Click OK.
9. To modify the inithsodbc.ora file, make a copy of the inithsodbc.ora file.
On Windows, the inithsodbc.ora file is typically located in the <ORACLE_HOME>\hs\admin directory.
The inithsodbc.ora file is an example of an initialization file that the Oracle database uses for Heterogeneous Services connections.
10. Rename the copy of the inithsodbc.ora file to init<database name>.ora, where <database name> is the name of the non-Oracle database.
For example, if the database name is DD1, you would rename the copy of the inithsodbc.ora file to initDD1.ora.

11. Open the `init<database name>.ora` file (i.e. the `inithsodbc.ora` file that you renamed in the previous step) in a text editor and make the following changes:

- a. Insert a `#` symbol at the beginning of the following line to comment out the line:

```
HS_FDS_TRACE_LEVEL = <trace_level>
```

Having made the change, the line will look like this:

```
# HS_FDS_TRACE_LEVEL = <trace_level>
```

- b. Insert the name of the non-Oracle database in the following line, where `<data source name>` is the name of the ODBC data source:

```
HS_FDS_CONNECT_INFO = <data source name>
```

For example, if the ODBC data source name is `DD1`, you would change the line as follows:

```
HS_FDS_CONNECT_INFO = DD1
```

12. Close and save the `init<database name>.ora` file.
13. Create a new entry for the non-Oracle database in the `listener.ora` file as follows:

- a. Open the `listener.ora` file in a text editor.

On Windows, the `listener.ora` file is typically located in the `<ORACLE_HOME>\network\admin` directory.

- b. Create a `SID_DESC` entry for the non-Oracle database under the `SID_LIST_LISTENER` heading.

For example:

```
(SID_DESC =  
  (SID_NAME=DD1)  
  (ORACLE_HOME=E:\ORACLE\ORA9I)  
  (PROGRAM=hsagent)  
)
```

where:

- `DD1` is the non-Oracle database name
- `E:\ORACLE\ORA9I` is the `<ORACLE_HOME>`

- PROGRAM=hsagent defines the hsagent.exe file as the executable file enabling Heterogeneous Services to access the specified non-Oracle database

Note: The above SID_DESC= entry example would be different when using an Oracle 8.1.7 (or later) Enterprise Edition database as follows:

- the path must point to the 8i ORACLE_HOME (e.g. ORACLE_HOME=E:\ORACLE\ORA8I)
- the PROGRAM= setting must be set to PROGRAM=hsodbc.

Hint: To help you add new entries to the listener.ora file, Oracle provides a sample source file. You might want to copy text from the sample file, paste it into the corresponding listener.ora file and then modify the entry appropriately. On Windows, the listener.ora.sample file is typically located in the <ORACLE_HOME>\hs\admin\sample directory.

14. Save and close the listener.ora file.

15. Create a new entry for the non-Oracle database in the tnsnames.ora file as follows:

- a. Open the tnsnames.ora file in a text editor.

On Windows, the tnsnames.ora file is typically located in the <ORACLE_HOME>\network\admin directory.

- b. Create an entry in the tnsnames.ora file for the non-Oracle database.

For example:

```
SALES =
  (DESCRIPTION=
    (ADDRESS_LIST=
      (Address= (PROTOCOL=TCP) (HOST=localhost) (PORT=1521))
      (CONNECT_DATA= (SID=DD1))
      (HS=)
    )
  )
```

where:

- SALES is the name of the tnsnames entry for the non-Oracle database
- DD1 is the SID of the non-Oracle database
- (HS=) indicates that this is a Heterogeneous Services connection.

Hint: To help you add new entries to the `tnsnames.ora` file, Oracle provides a sample source file. You might want to copy text from the sample file, paste it into the corresponding `tnsnames.ora` file and then modify the entry appropriately. On Windows, the `tnsnames.ora.sample` file is typically located in the `<ORACLE_HOME>\hs\admin\sample` directory.

16. Save and close the `tnsnames.ora` file.

17. Restart the database and `tnslister`.

Work with your database administrator to restart the database and `tnslister`.

18. Display an operating system command prompt.

19. Type the following at the command prompt to test that the listener is working correctly:

```
tnsping <data source name>
```

where *<data source name>* is the name of the non-Oracle database you want to test.

For example, if the database name is `DD1`, type the following at the command prompt:

```
tnsping DD1
```

The `tnsping` command should display an OK message. If the `tnsping` command does not succeed, it will display an appropriate error message indicating why the command did not succeed.

20. Start SQL*Plus (if it is not already running) and connect as the EUL owner.

For example, if SQL*Plus is already running, you might type the following at the command prompt:

```
SQL> CONNECT jchan/tiger@database;
```

Where `jchan` is the EUL owner and `tiger` is the EUL owner password.

21. Type the following at the command prompt:

```
SQL> create [public] database link <name> connect to <odbcuser> identified  
by <odbcpassword> using '<tnsnames entry>';
```

where:

`[public]` is an optional argument that creates a public database link. If the `[public]` argument is not used, the statement creates a private database link. A

public database link enforces a lower level of security than if you create a private database link (for more information, see your database administrator).

<name> is the name of the database link.

<odbcuser> is the user on the non-Oracle database.

<odbcpassword> is the password of the *<odbcuser>* on the non-Oracle database.

<tnsnames entry> is the name used at the start of each *tnsnames.ora* file (e.g. from the earlier example, the *<tnsnames entry>* would be SALES).

For example:

```
SQL> create database link sales_link connect to odbc_username identified by
odbc_userpassword using 'SALES';
```

Note the following:

- To create a private database link, the EUL owner must have the `CREATE DATABASE LINK` privilege.

For example, to grant the create private database link privilege in SQL*Plus you would issue the following statement:

```
SQL> grant create database link to hdsuser;
```

where `hdsuser` is the EUL owner

- To create a public database link, the EUL owner must have the `CREATE PUBLIC DATABASE LINK` privilege.

For example, to grant the create public database link privilege in SQL*Plus you would issue the following statement:

```
SQL> grant create public database link to hdsuser;
```

where `hdsuser` is the EUL owner.

- You can include a domain as part of the link's name (e.g. `SALES.mycompany.com`).

Whether you need to include a domain as part of the database link name depends on how you configure SQL*Net (for more information about SQL*Net configuration, see your database administrator).

- If the non-Oracle database does not support usernames, you can omit the `connect to <odbcuser> identified by <odbcpassword>` section.

22. In SQL*Plus, test the connection to the non-Oracle database by issuing a SELECT statement against a table on the non-Oracle database.

For example:

```
SQL> select * from PRODUCT@sales_link;
```

where PRODUCT is the name of a table on the non-Oracle database, and sales_link is the name of the database link to the non-Oracle database specified in the previous step.

Note: Do not use DESC in the SQL statement because DESC is not supported against ODBC and gives unpredictable results.

For more information about generic connectivity, see the *Oracle9i Heterogeneous Connectivity Administrator's Guide*.

How to migrate an EUL from a non-Oracle database (accessed using native ODBC drivers) to an Oracle database (to support generic connectivity)

To migrate an EUL from a non-Oracle database to an Oracle database:

1. Export the EUL objects from the non-Oracle database to an .eex file.
For more information, see "[Which export/import method to use](#)".
2. Set up generic connectivity in the Oracle database that will contain the EUL.
For more information, see "[How to set up generic connectivity for Discoverer using Enterprise Manager](#)".
3. Create an EUL on the Oracle database.
For more information about how to create an EUL, see "[Creating and maintaining End User Layers](#)".
4. Import the .eex file you created in step 1 into the Oracle database.
For more information, see "[Which export/import method to use](#)".
5. Resolve any mappings (i.e. Discoverer Business areas and underlying objects).
 - a. Choose View | Validate | Folders
 - b. Select the first folder that displays an error and choose Edit | Properties to display the "[Folder Properties dialog](#)".
 - c. Click the Database field to display the "[Choose user dialog](#)".

- d. Select the database link that you created in the ["How to set up generic connectivity for Discoverer using Enterprise Manager"](#) task.
 - e. Select the correct user on the non-Oracle database.
 - f. Click OK to close the Choose user dialog.
 - g. Click OK to apply the new value in the Database field and close the Folder Properties dialog.
 - h. Repeat steps a) to g) for each folder that displays an error.
6. Set up security on the Oracle database for database users.

For more information, see ["Controlling access to information"](#).

Discoverer users can now connect to the non-Oracle database using generic connectivity and continue to use their existing workbooks and worksheets.

About using the Transparent Gateway to connect to non-Oracle databases

The Transparent Gateway is one of the mechanisms supported by the Oracle database Heterogeneous Services feature for accessing non-Oracle databases.

Discoverer users can use an Oracle Transparent Gateway in conjunction with Heterogeneous Services to access a particular, vendor-specific, non-Oracle database. For example, you would use the Oracle Transparent Gateway for Sybase on Solaris to access a Sybase database that was operating on a Sun Solaris platform.

You must have the appropriate Oracle Transparent Gateway software installed.

For more information about the Oracle Transparent Gateway and how to set it up, see the *Oracle9i Database Installation Guide*.

About Discoverer support for Oracle Rdb

Discoverer can access Oracle Rdb without the need for (and restrictions of) open database connectivity (ODBC).

Topics in this section include the following:

- ["What are the software requirements for using Discoverer with Oracle Rdb?"](#)
- ["Which Discoverer features are not supported by Oracle Rdb?"](#)
- ["Which Discoverer features are partially supported by Oracle Rdb?"](#)

What are the software requirements for using Discoverer with Oracle Rdb?

To use Oracle Discoverer directly with Oracle Rdb you must install:

- OracleAS Discoverer Version 9.0.4, Oracle Discoverer Administrator or Oracle Discoverer Desktop
- Oracle Rdb Release 7.0.1.3 or later
- SQL*Net for Oracle Rdb7 Release 1.0.2. or later

You might find that the version of SQL*Net for Oracle Rdb7 requires a special patch with bug fixes specifically for Discoverer (for more information, see your database administrator). Providing you have the necessary support agreement, you can obtain this patch by contacting your Oracle support representative.

SQL*Net for Oracle Rdb7 enables an Oracle Rdb7 server to appear as an Oracle server to the client.

You need to install SQL*Net for Oracle Rdb7 software only once on each server system. You also need to prepare each Oracle Rdb7 database environment by defining the Oracle functions and the emulated Oracle data dictionary to serve with SQL*Net for Oracle Rdb7.

For more information about SQL*Net for Oracle Rdb7, see the following documentation:

- *Guide to SQL*Net for Rdb7*

This guide helps you set up and use SQL*Net for Oracle Rdb7 software to configure and develop useful connections between SQL*Net clients and Oracle Oracle Rdb7 databases.
- *Oracle SQL/Services Release Notes Release 7.1.2*

This manual contains Oracle SQL/Services Release Notes that are specific to SQL*Net for Oracle Rdb7 Release 7.1.2. The notes describe:

 - changed and enhanced features
 - upgrade and compatibility information
 - new and existing software problems and restrictions
 - other software documentation
- *Comparison of SQL Dialects for Oracle and Rdb*

The principal purpose of this manual is to help Discoverer managers (who use SQL*Net for Oracle Rdb software) to understand differences in the Oracle and

Oracle Rdb7 SQL dialects. This manual identifies where differences in the SQL dialects might occur, and provides additional information to help you achieve the desired functions.

Which Discoverer features are not supported by Oracle Rdb?

The following Discoverer features are not supported when using Discoverer with Oracle Rdb:

Feature	Reason for non-support
Query Prediction.	Uses Oracle's Cost Based Optimizer.
The Discoverer EUL V5 Workbooks - eul5.eex.	Uses Oracle's PL/SQL.
Register PL/SQL functions.	Uses Oracle's PL/SQL.
Summary folders where refresh is managed by Discoverer.	Uses Oracle's PL/SQL.
Database Roles.	Oracle RDBMS specific.
Parser Hints on Folders.	Oracle RDBMS specific.
Server side scheduled reporting.	Uses Oracle's PL/SQL.
Oracle analytic functions.	Oracle RDBMS specific.

Which Discoverer features are partially supported by Oracle Rdb?

The following features are partially supported by Oracle Rdb:

Feature	Reason for non support
Some functions: <ul style="list-style-type: none">▪ INSTR▪ INSTRB▪ VSIZE▪ UID▪ DUMP▪ TRANSLATE▪ SOUNDEX▪ STDDEV▪ VARIANCE▪ STDDEV_DISTINCT▪ VARIANCE_DISTINCT	Oracle RDBMS specific
Security - Roles and Users	Not supported directly, needs to be set up by the Rdb administrator.

Upgrading from earlier versions of Discoverer

Upgrading from earlier versions of Discoverer

This chapter explains how to upgrade to this version of Discoverer and contains the following topics:

- ["Which upgrade path to take?"](#)
- ["What are the prerequisites for upgrading to Discoverer Version 9.0.4?"](#)
- ["About Discoverer versions and EUL versions"](#)
- ["An overview of the upgrade process"](#)
- ["Upgrading from Discoverer Release 3.1 \(or earlier\) to Discoverer Version 9.0.4"](#)
- ["Upgrading from Discoverer Release 4.1 to Discoverer Version 9.0.4"](#)
- ["Upgrading from Discoverer Version 9.0.2 to Discoverer Version 9.0.4"](#)
- ["Notes about upgrading to Discoverer Version 9.0.4"](#)

Which upgrade path to take?

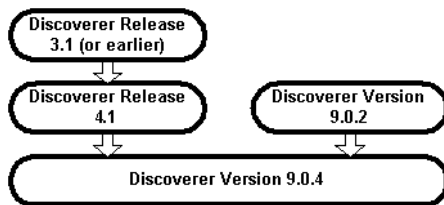
The upgrade path to choose depends on the version of Discoverer you are upgrading from, as follows:

- if you are upgrading from Release 3.1 or earlier, you have to upgrade to Release 4.1 (for more information, see ["Upgrading from Discoverer Release 3.1 \(or earlier\) to Discoverer Version 9.0.4"](#))

- if you are upgrading from Release 4.1, you can upgrade straight to Version 9.0.4 (for more information, see ["Upgrading from Discoverer Release 4.1 to Discoverer Version 9.0.4"](#))
- if you are upgrading from Version 9.0.2, you can upgrade straight to Version 9.0.4 (for more information, see ["Upgrading from Discoverer Version 9.0.2 to Discoverer Version 9.0.4"](#))

The different upgrade paths are shown in the flowchart below:

Figure 23–1 Discoverer upgrade flowchart



What are the prerequisites for upgrading to Discoverer Version 9.0.4?

Before you can upgrade to Discoverer Version 9.0.4, Oracle Developer Suite (including Discoverer Administrator Version 9.0.4) must already be installed.

In addition, to upgrade End User Layers, the EUL owners must have the following privileges:

- CREATE PROCEDURE
- CREATE SESSION
- CREATE TABLE
- CREATE VIEW
- CREATE SEQUENCE

If upgrading to an Oracle 8.1.7 (or later) database, summaries are implemented as materialized views and the EUL owners therefore require the following privileges:

- CREATE ANY MATERIALIZED VIEW
- DROP ANY MATERIALIZED VIEW
- ALTER ANY MATERIALIZED VIEW
- GLOBAL QUERY REWRITE

Important: To maintain the consistency of data transferred to upgraded EULs, it is very important that no Discoverer Administrator sessions are opened on the earlier version of the EUL while the upgrade is in progress.

About Discoverer versions and EUL versions

Specific versions of Discoverer are compatible with particular EUL versions.

Discoverer end users will be unable to connect to an EUL that is not compatible with the version of the Discoverer product that they are using.

Note that Discoverer version numbers and EUL version numbers are not totally synchronized, as follows:

Discoverer Release/Version Number	EUL Version Number
Release 3.1.x/3.3.x	Release 3.1.x
Release 4.1.x	Release 4.1.x
Version 9.0.2.52 and earlier	Version 5.0.0.x
Version 9.0.2.53 and later	Version 5.0.2.x
Version 9.0.4.x	Version 5.0.2.x

If you attempt to connect to a Release 4.1 EUL or a Version 5.0.0.x EUL using Discoverer Administrator Version 9.0.4, you will be prompted to upgrade the EUL to the current version.

For more information about compatibility between Discoverer versions and EUL versions, see the Discoverer Release Notes.

An overview of the upgrade process

During the upgrade process, you will perform a number of steps. Some of these steps will depend on the version of Discoverer you are upgrading from.

Below is an overview of the steps that you will follow:

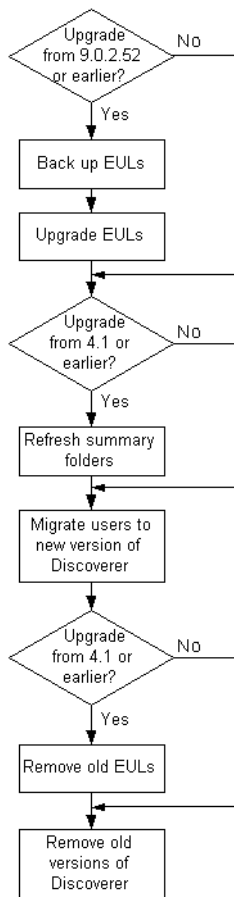
- You will use the database export utility to take a back up of each EUL that you will upgrade (**not required when upgrading from Version 9.0.2.53 (or later) to Version 9.0.4**). It is important that you take a database export instead of an EUL

export to include the EUL tables themselves (including workbook definitions saved to the database, and query statistics) as well as the EUL metadata.

- You will upgrade EULs by opening each EUL in the latest version of Discoverer Administrator (**not required when upgrading from Version 9.0.2.53 (or later) to Version 9.0.4**). When you log on to Discoverer Administrator as the owner of a Release 4.1 or Version 5.0.0.x EUL, Discoverer Administrator automatically prompts you to upgrade the EUL to the current version.
- You will refresh summary folders (**not required when upgrading from Version 9.0.2 to Version 9.0.4**). Although summary folder metadata is upgraded during the EUL upgrade, you will have to refresh the summary data when the EUL upgrade is complete.
- You will migrate users to the new version of Discoverer. Users of older versions of Discoverer will not be able to access upgraded EULs. Note that:
 - users of Discoverer Release 4.1 will still be able to access an original Release 4.1 EUL, but any changes they make will not be visible in the upgraded Version 5.0.2.x EUL
 - users of Discoverer Release 9.0.2 who accessed a Version 5.0.0.x EUL will not be able to access that EUL when the EUL has been upgraded to Version 5.0.2.x
- You will remove the old EULs from the database (**not required when upgrading from Version 9.0.2 to Version 9.0.4**). Initially you will probably want to just prevent access to the original EULs and only allow users to access the upgraded EULs. When you are confident that all users are successfully accessing the upgraded EULs, you will remove the old EULs.
- You will remove old versions of Discoverer from client machines. When you are confident that all users are successfully accessing the upgraded EULs with the latest version of Discoverer, you will typically want to remove old versions of Discoverer.

The above steps are shown in the flowchart below:

Figure 23–2 Discoverer upgrade flowchart



Depending on how the Discoverer system has been set up, there might be other issues to consider (for more information, see ["Notes about upgrading to Discoverer Version 9.0.4"](#)).

Upgrading from Discoverer Release 3.1 (or earlier) to Discoverer Version 9.0.4

There is no direct upgrade path from Discoverer Release 3.1 (or earlier) to Discoverer Version 9.0.4. Instead, use the following upgrade path:

- if upgrading from a version of Discoverer earlier than Release 3.1, upgrade to Discoverer Release 3.1 (for more information, see *Oracle Discoverer 3.1 Installation and Upgrade Guide*)
- upgrade from Discoverer Release 3.1 to Discoverer Release 4.1 (for more information, see *Oracle Discoverer 4.1 Installation and Upgrade Guide*)
- upgrade from Discoverer Release 4.1 to Discoverer Version 9.0.4 (for more information, see "[Upgrading from Discoverer Release 4.1 to Discoverer Version 9.0.4](#)")

Upgrading from Discoverer Release 4.1 to Discoverer Version 9.0.4

This section explains how to upgrade to Discoverer Version 9.0.4, and includes the following topics:

- "[About upgrading from Discoverer Release 4.1 to Discoverer Version 9.0.4](#)"
- "[Upgrade step 1: Back up the Release 4.1 EUL](#)"
- "[Upgrade step 2: Upgrade the Release 4.1 EUL](#)"
- "[Upgrade step 3: Refresh summary folders](#)"
- "[Upgrade step 4: Migrate users to Discoverer Version 9.0.4](#)"
- "[Upgrade step 5: Remove the Release 4.1 EULs](#)"
- "[Upgrade step 6: Remove Discoverer Release 4.1 products from client machines](#)"

About upgrading from Discoverer Release 4.1 to Discoverer Version 9.0.4

Before you do anything else, you will take a back up of the Release 4.1 EUL as described in the following upgrade step:

- "[Upgrade step 1: Back up the Release 4.1 EUL](#)"

To use Discoverer Version 9.0.4, Discoverer users must have access to a Discoverer Version 5 End User Layer (EUL). If users have been using a Discoverer Release 4.1 EUL, that EUL must be upgraded before the users can access it using Discoverer Version 9.0.4.

The EUL upgrade process creates new Version 5 EUL tables, and then copies metadata from the Release 4.1 EUL tables into the new tables. Existing users can continue working with Discoverer Release 4.1 during the upgrade process because the upgrade process is non-destructive (i.e. the Release 4.1 EUL tables are not deleted).

Follow the upgrade steps below to upgrade the EUL using Discoverer Administrator:

- ["Upgrade step 2: Upgrade the Release 4.1 EUL"](#)
- ["Upgrade step 3: Refresh summary folders"](#)

When you are satisfied that all Release 4.1 EULs have been successfully upgraded, follow the upgrade steps below:

- ["Upgrade step 4: Migrate users to Discoverer Version 9.0.4"](#)
- ["Upgrade step 5: Remove the Release 4.1 EULs"](#)

When you have upgraded all users and removed all Release 4.1 EULs, follow the upgrade step below:

- ["Upgrade step 6: Remove Discoverer Release 4.1 products from client machines"](#)

Upgrade step 1: Back up the Release 4.1 EUL

Before you can upgrade a Discoverer Release 4.1 EUL to a Discoverer Version 5 EUL, you must first back up the EUL tables by exporting the EUL owner using the standard database export utility.

How to export the EUL owner will depend on:

- the version of the Oracle client software installed on your machine
- the version of the Oracle database on which the Release 4.1 EUL resides

We recommend that the version of the Oracle database and the version of the Oracle database client software installed on your machine are the same. If the versions are not the same (e.g. if the EUL is on an Oracle8i database and Oracle9i client software is installed on your machine), you might not be able to follow the instructions below. If you are unable to export the EUL, contact your database administrator and ask them to export the EUL for you.

To back up a Release 4.1 EUL (assuming the EUL resides on an Oracle9i database and you are using a machine on which you have installed Oracle Developer Suite), follow the steps described in [Chapter 3, "How to export an EUL using the standard database export utility"](#).

Having backed up the Release 4.1 EUL, you are now ready to upgrade it to Version 5.

Upgrade step 2: Upgrade the Release 4.1 EUL

Having backed up a Release 4.1 EUL, you can now upgrade the EUL to Version 5. To upgrade an EUL, you simply open the EUL in the latest version of Discoverer Administrator by following the instructions below. The same database user that owned the Release 4.1 EUL will own the Version 5 EUL.

Note that Release 4.1 end users are not affected by the upgrade and can continue using the Release 4.1 EUL. However, any changes (e.g. modifications to work-books) that end users make in the Release 4.1 EUL after the upgrade process has started will not be present in the Version 5 EUL.

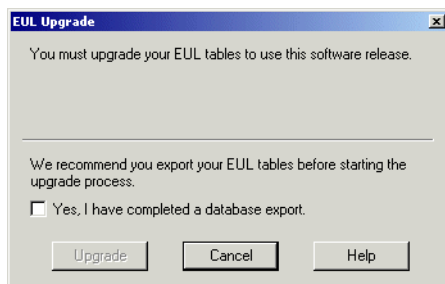
Important: To maintain the consistency of data transferred to the Version 5 EUL, it is very important that no Discoverer Administrator sessions are opened on the Release 4.1 EUL while the upgrade is in progress.

To upgrade a Release 4.1 EUL to Version 5:

1. From the Windows Start menu, choose Programs | Oracle Developer Suite - <HOME_NAME> | Discoverer Administrator to display the Connect to Oracle Discoverer Administrator dialog.
2. Enter the database user name and password of the owner of the Discoverer Release 4.1 EUL that you want to upgrade.
3. Click OK.

The EUL Upgrade dialog is displayed.

Figure 23–3 EUL Upgrade dialog



Note: If you have not already exported the Release 4.1 EUL, click Cancel and export the EUL (for more information, see "[Upgrade step 1: Back up the Release 4.1 EUL](#)").

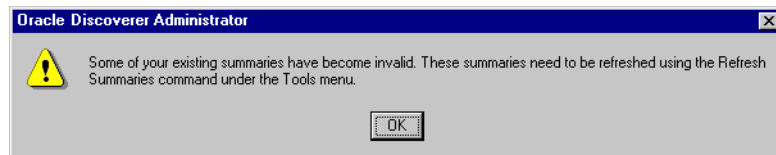
4. Select the **Yes, I have completed a database export** check box to confirm that you have exported the Discoverer Release 4.1 EUL.
5. Click Upgrade to create a new Version 5 EUL using data copied from the Release 4.1 EUL.

The EUL Upgrade progress bar displays the status of the upgrade.

Any messages that are output during the upgrade process are displayed in the End User Layer Upgrade Log dialog. For more information about messages that refer to invalid characters in identifiers, see "[Notes about upgrading identifiers containing invalid characters](#)".

If there are summary folders in the upgraded EUL, the following message dialog is displayed, indicating that the summary folders are invalid and must be refreshed.

Figure 23–4 Invalid summaries warning message dialog



6. If the above message dialog is displayed, click OK.

The Load Wizard is displayed.

7. Click Cancel to close the Load Wizard.

The EUL upgrade is complete. You can use this EUL to connect to the database using Discoverer Administrator Version 9.0.4.

Upgrade step 3: Refresh summary folders

If there are summary folders in the EUL you have upgraded, you must refresh the summary folders.

The definitions of any Release 4.1 summary folders are copied into the new Version 5 EUL and the status of any upgraded summary folders is changed to "Refresh Required". The database tables or materialized views on which the upgraded summary folders are based are not actually created until the summary folders are refreshed.

When you refresh upgraded summary folders:

- on Oracle Standard Edition databases, Discoverer creates summary tables
- on Oracle 8.1.7 (or later) Enterprise Edition databases, Discoverer creates materialized views

When the summary tables or materialized views have been created, Discoverer can then use the summary folders to optimize queries.

For more information about summary folders, summary tables, and materialized views, see [Chapter 13, "Managing summary folders"](#).

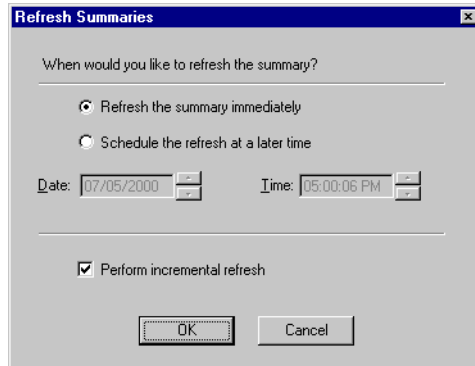
To refresh upgraded summary folders:

1. Connect to Discoverer Administrator as the owner of the upgraded EUL.
2. Open the business area containing the summary folders that you want to refresh.
3. Display the Summaries tab of the Workarea.
4. Select the summary folders that you want to refresh.

You will have to refresh all of the summary folders before Discoverer can use them. However, depending on the amount of data, you might not want to refresh all the summary folders at the same time.

5. Select Tools | Refresh Summaries.

For any summary folders not based on external summary tables, the Refresh Summaries dialog is displayed.

Figure 23–5 Refresh Summaries dialog

6. Specify refresh options as required.

You can refresh summary folders immediately or specify a time for the refresh. Depending on the amount of data, you might want to schedule the refresh for an off-peak time.

7. Click OK to refresh the summary folders.

Notes

- If an upgraded EUL contains summary folders based on external summary tables, you must also refresh those summary folders. During the refresh, Discoverer updates EUL metadata for summary folders based on external summary tables. If you are using Oracle 8.1.7 (or later), Discoverer creates a materialized view that references the external summary table.

Upgrade step 4: Migrate users to Discoverer Version 9.0.4

When you have upgraded all Release 4.1 EULs and you are satisfied that the upgraded EULs are ready for use, migrate Discoverer users to Discoverer Version 9.0.4.

While you are rolling out the migration across the organization, users can continue to work with Discoverer Release 4.1 (accessing the original EUL) or with Discoverer Version 9.0.4 (accessing the upgraded EUL). However, note that any changes you make using one version of Discoverer Administrator will not be available to users of the other version of Discoverer.

How to migrate Discoverer users to Discoverer Version 9.0.4 will depend on the Discoverer tools they use.

To migrate Discoverer Plus and Discoverer Viewer users

1. Install Oracle Application Server Discoverer.
2. Follow the instructions in *Oracle Application Server 10g Upgrading to 10g (9.0.4)* to upgrade the Discoverer components on the middle tier

To migrate Discoverer Desktop users:

1. Install Discoverer Desktop on client machines using the Discoverer Desktop CD supplied with Oracle Developer Suite.

The Oracle Installer automatically installs Discoverer Desktop Version 9.0.4 in a separate directory from Discoverer Release 4.1.

Notes

When a user logs into Discoverer for the first time (i.e. using Discoverer Plus, Discoverer Desktop, or Discoverer Viewer), Discoverer searches for any Version 5 EULs that the user has access to, as follows:

- If a valid EUL is found, the user can connect and can start work in Discoverer Version 9.0.4.
- If no valid EUL is found, Discoverer alerts the user that they cannot connect to the database. At this point, the user must contact their Discoverer manager because it is likely that an EUL has not yet been upgraded. Note that the user can still use Discoverer Release 4.1 against an existing Release 4.1 EUL.

Upgrade step 5: Remove the Release 4.1 EULs

When you have upgraded the Release 4.1 EULs and migrated all users to Discoverer 9.0.4, you can remove the Release 4.1 EULs.

Initially you will probably want to just prevent access to the original EULs and only allow users to access the upgraded EULs. When you are confident that all users are successfully accessing the upgraded EULs, you can remove the old EULs.

A SQL script called `eul4del.sql` is shipped with Discoverer that enables you to remove Release 4.1 EULs and associated tables (including summary tables/materialized views).

Note the following:

- When you run the eul4del.sql script, you are prompted for the password of the SYSTEM user. If you are not sure of the password of the SYSTEM user, contact your database administrator. Rather than give you the SYSTEM user's password, your database administrator might prefer to run the script for you.
- The eul4del.sql script will not complete successfully if there are any summary folders owned by users other than the EUL owner. The script will list any such summary folders and their owners. The summary folder owners must delete their summary folders before you can remove the Release 4.1 EUL.
- If you have access to Discoverer Administration Edition Release 4.1, you can delete EULs using the EUL Manager instead of using the eul4del.sql script.
- If users have modified the Release 4.1 EUL since you upgraded it, their changes will not be in the Version 9.0.4 EUL. If you think significant changes might have been made, consider taking another backup of the Release 4.1 EUL before removing it (for more information, see "[Upgrade step 1: Back up the Release 4.1 EUL](#)").

To remove a Release 4.1 EUL using the eul4del.sql script:

1. Choose ORACLE | Application Development | SQL*Plus from the Windows Start menu to display the SQL*Plus Log On dialog.
2. Enter the database user name, password and database for the owner of the Discoverer Release 4.1 EUL that you want to remove.
3. Type the following at the command prompt to start the Release 4.1 EUL deinstallation script:

```
SQL> @<ORACLE_HOME>\discoverer\util\eul4del.sql
```

The deinstallation script removes a specified Release 4.1 EUL and any associated database objects, including summary tables/materialized views.

A summary of the deinstallation script is displayed:

```
Removing summary refresh jobs ...
Discoverer End User Layer Database Tables (4.x Production)
deinstallation
This script will remove a version 4.x EUL and any associated database
objects.
It will:
1. Ask you to enter the ORACLE SYSTEM password and connect string.
2. Ask you to enter the name and password of the 4.x EUL owner.
3. Confirm that you wish to drop the 4.x EUL.
4. Check for database jobs for users other than the 4.x EUL owner.
```

5. Confirm whether to drop 4.x tutorial tables (if any).
6. Log in as the 4.x EUL owner and remove any database jobs for it.
7. Remove all summary database objects for the 4.x EUL.
8. Remove all scheduled workbook database objects for the 4.x EUL.
9. Remove the 4.x EUL tables.
10. Remove user and public synonyms (if any) for the 4.x EUL tables.

4. When prompted, enter the password and database connect string for the SYSTEM user.

If you are not sure of the password of the SYSTEM user, contact your database administrator.

5. Enter the name and password of the owner of the Release 4.1 EUL.

The following text is displayed:

```
Preparing to remove EUL 4.x owned by <username> at <today's date>
If you continue, the specified 4.x End User Layer will be PERMANENTLY
dropped. All End User Layer information and workbooks stored in the
database will be deleted.
Any 5.x End User Layer tables will NOT be affected by this process.
THIS PROCESS IS NON-REVERSIBLE.
Do you wish to continue [N] :
```

Note that the EUL removal process is not reversible.

6. Type Y to confirm that you want to drop the Release 4.1 EUL.

If the script detects the Release 4.1 tutorial tables, you are prompted to confirm whether to delete the tables.

During the process of dropping the Release 4.1 EUL, the script will check whether there are any summary folders owned by users other than the EUL owner.

- If there are no summary folders owned by other users, then the Release 4.1 EUL is dropped. You will see a number of messages showing the various stages of the drop process, as follows:

```
Removing summary refresh jobs ...
Dropping internally managed summary data ...
Removing scheduled workbook jobs ...
Dropping scheduled workbook data ...
Dropping 4.x End User Layer Tables ...
Removing public synonyms (if any) ...
Connected.
```

Finished removing 4.x End User Layer.

- If there are summary folders owned by users other than the EUL owner, the script will halt and display the following text:

```
The following users have managed summaries which must be dropped
before this EUL can be deinstalled:
```

```
User: SCOTT, Summary: Scott's Summary
```

```
User: FRED, Summary: Fred's Summary
```

```
etc.
```

```
Quitting - no changes made.
```

If this message appears, the specified users must log into Discoverer Administration Edition Release 4.1 and remove the specified summary folders (for more information, see [Chapter 14, "How to delete summary folders"](#)). When these summary folders have been dropped, rerun the script `eul4del.sql` in order to drop the Release 4.1 EUL.

Upgrade step 6: Remove Discoverer Release 4.1 products from client machines

When you and your users have connected successfully to Discoverer Version 9.0.4 and you are confident that summary folders are working correctly, you can remove Discoverer Release 4.1 products (i.e. Discoverer Administration Edition, Discoverer Desktop Edition) from client machines.

To remove Discoverer Release 4.1 products from client machines:

1. Insert the CD from which you installed Discoverer Release 4.1 products into your computer.

The Oracle Installer starts automatically. If the Installer does not start automatically, access the CD-ROM with Windows Explorer and run `setup.exe` from the CD root directory.

2. Use the Oracle Installer dialogs to remove Discoverer Release 4.1 products.

Note that any workbooks created in Discoverer Release 4.1 and saved in the `<ORACLE_HOME>\discvr4` directory will not be deleted.

3. (optional) To retain workbooks from the `<ORACLE_HOME>\discvr4` directory for future use:
 - a. Move any Discoverer Release 4.1 workbooks from the `<ORACLE_HOME>\discvr4` directory to a new directory for use with Discoverer Version 9.0.4.

- b. Delete the \discvr4 directory.

Upgrading from Discoverer Version 9.0.2 to Discoverer Version 9.0.4

This section explains how to upgrade from Discoverer 9.0.2 to 9.0.4 and contains the following topics:

["About upgrading from Discoverer Version 9.0.2 to Discoverer Version 9.0.4"](#)

["Upgrade step 1: Back up the Version 5 EUL"](#)

["Upgrade step 2: Upgrade the Version 5 EUL"](#)

["Upgrade step 3: Migrate users to Discoverer Version 9.0.4"](#)

["Upgrade step 3: Migrate users to Discoverer Version 9.0.4"](#)

["Upgrade step 4: Remove Discoverer Version 9.0.2 products from client machines"](#)

About upgrading from Discoverer Version 9.0.2 to Discoverer Version 9.0.4

To use Discoverer Version 9.0.4, Discoverer users must have access to a Discoverer Version 5 End User Layer (EUL).

If users have been using Discoverer Version 9.0.2 successfully, they already have access to a Version 5 End User Layer. However, depending on the Discoverer Version 9.0.2 patches that have been applied, the existing Version 5 EUL might need upgrading to Version 5.0.2.

For each EUL that needs upgrading, follow the upgrade steps below:

- ["Upgrade step 1: Back up the Version 5 EUL"](#)
- ["Upgrade step 2: Upgrade the Version 5 EUL"](#)

When you are satisfied that any Version 5 EULs that need upgrading have been upgraded, follow the upgrade step below:

- ["Upgrade step 3: Migrate users to Discoverer Version 9.0.4"](#)

When you have upgraded all users, follow the upgrade step below:

- ["Upgrade step 4: Remove Discoverer Version 9.0.2 products from client machines"](#)

Upgrade step 1: Back up the Version 5 EUL

Depending on the version of Oracle Discoverer you are upgrading from, you might need to back up the EUL as follows:

- If you know that you are upgrading from Oracle Discoverer Version 9.0.2.53 (or later), you do not need to upgrade the EUL and you can go straight to "[Upgrade step 3: Migrate users to Discoverer Version 9.0.4](#)".
- If you know that you are upgrading from Oracle Discoverer Version 9.0.2.52 (or earlier), follow the instructions in this step to back up the EUL. You can then upgrade the EUL by following the instructions in "[Upgrade step 2: Upgrade the Version 5 EUL](#)".
- If you are not sure of the version of Oracle Discoverer you are upgrading from, go straight to "[Upgrade step 2: Upgrade the Version 5 EUL](#)". If Discoverer Administrator detects that you are upgrading from 9.0.2.52 (or earlier), you will be prompted to confirm that you have backed up the EUL. Return to this step and follow the instructions to back up the EUL.

If you do need to upgrade the EUL, you must first back up the EUL tables by exporting the EUL owner using the standard database export utility.

How to export the EUL owner will depend on:

- the version of the Oracle client software installed on your machine
- the version of the Oracle database on which the EUL resides

We recommend that the version of the Oracle database and the version of the Oracle database client software installed on your machine are the same. If the versions are not the same (e.g. if the EUL is on an Oracle8i database and Oracle9i client software is installed on your machine), you might not be able to follow the instructions below. If you are unable to export the EUL, contact your database administrator and ask them to export the EUL for you.

To back up a Version 5 EUL (assuming the EUL resides on an Oracle9i database and you are using a machine on which you have installed Oracle Developer Server), follow the steps described in [Chapter 3, "How to export an EUL using the standard database export utility"](#).

Having backed up the EUL, you are now ready to upgrade it.

Upgrade step 2: Upgrade the Version 5 EUL

To upgrade an EUL, you simply open the EUL in the latest version of Discoverer Administrator by following the instructions below.

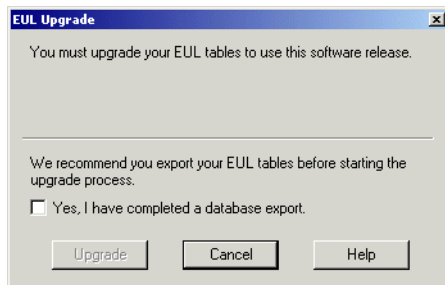
Note that after you have upgraded the EUL, users of Discoverer Version 9.0.2.52 (or earlier) will not be able to use the upgraded EUL.

To upgrade a Version 5 EUL to the latest version:

1. From the Windows Start menu, choose Programs | Oracle Developer Suite - <HOME_NAME> | Discoverer Administrator to display the Connect to Oracle Discoverer Administrator dialog.
2. Enter the database user name and password of the owner of the EUL that you want to upgrade.
3. Click OK.

The EUL Upgrade dialog is displayed.

Figure 23–6 EUL Upgrade dialog



Notes:

- If you have not already exported the EUL, click Cancel and export the EUL (for more information, see "[Upgrade step 1: Back up the Version 5 EUL](#)").
 - If the EUL Upgrade dialog is not displayed, the Version 5 EUL has already been upgraded. You do not need to upgrade the EUL again, so go straight to "[Upgrade step 3: Migrate users to Discoverer Version 9.0.4](#)".
4. Select the **Yes, I have completed a database export** check box to confirm that you have exported the EUL.
 5. Click Upgrade to upgrade the Version 5 EUL.

The EUL Upgrade progress bar displays the status of the upgrade.

Any messages that are output during the upgrade process are displayed in the End User Layer Upgrade Log dialog. For more information about messages that refer to invalid characters in identifiers, see "[Notes about upgrading identifiers containing invalid characters](#)".

The Load Wizard is displayed.

6. Click Cancel to close the Load Wizard.

The EUL upgrade is complete. You can use this EUL to connect to the database using Discoverer Administrator Version 9.0.4.

Upgrade step 3: Migrate users to Discoverer Version 9.0.4

Having upgraded Version 5 EULs (if necessary), you can migrate Discoverer users to Discoverer Version 9.0.4 as follows:

- If you upgraded EULs (i.e. because the EUL version number was less than 5.0.2), users will have to migrate to Discoverer Version 9.0.2.53 (or later) or Discoverer Version 9.0.4 (recommended) to access the upgraded EUL. Users of Discoverer Version 9.0.2.52 (or earlier) will not be able to use the upgraded EUL.
- If you did not have to upgrade EULs (i.e. because the EUL version number was already 5.0.2 or greater), users can access the EUL using either Version 9.0.2.53 (or later) or Version 9.0.4 (recommended).

How to migrate Discoverer users to Discoverer Version 9.0.4 will depend on the Discoverer tools they use.

To migrate Discoverer Plus and Discoverer Viewer users

1. Install Oracle Application Server Discoverer.
2. Follow the instructions in *Oracle Application Server 10g Upgrading to 10g (9.0.4)* to upgrade the Discoverer components on the middle tier

To migrate Discoverer Desktop users:

1. Install Discoverer Desktop on client machines using the Discoverer Desktop CD supplied with Oracle Developer Suite.

The Oracle Installer automatically installs Discoverer Desktop Version 9.0.4 in a separate directory from Discoverer Version 9.0.2.

Notes

When a user logs into Discoverer Version 9.0.4 for the first time (i.e. using Discoverer Plus, Discoverer Desktop, or Discoverer Viewer), Discoverer searches for any Version 5 EULs that the user has access to, as follows:

- If a valid EUL is found, the user can connect and can start work in Discoverer Version 9.0.4.
- If no valid EUL is found, Discoverer alerts the user that they cannot connect to the database. At this point, the user must contact their Discoverer manager because it is likely that an EUL has not yet been upgraded. Note that the user can still use Discoverer Version 9.0.2 against a non-upgraded EUL.

After Discoverer Version 9.0.4 is installed and a connection to the database has been established successfully through a Version 5 EUL, you can remove Discoverer Version 9.0.2 products (i.e. Discoverer Desktop Edition, Discoverer Administration Edition) from client machines.

Upgrade step 4: Remove Discoverer Version 9.0.2 products from client machines

When you and your users have connected successfully to Version 5 EULs using Discoverer Version 9.0.4, you can remove Discoverer Version 9.0.2 products (i.e. Discoverer Administration Edition, Discoverer Desktop Edition) from client machines.

To remove Discoverer Version 9.0.2 products from client machines:

1. Insert the CD from which you installed Discoverer Version 9.0.2 products into your computer.

The Oracle Installer starts automatically. If the Installer does not start automatically, access the CD-ROM with Windows Explorer and run setup.exe from the CD root directory.

2. Use the Oracle Installer dialogs to remove Discoverer Version 9.0.2 products.

Note that any workbooks created in Discoverer Version 9.0.2 and saved in the <ORACLE_HOME>\discoverer902 directory will not be deleted.

3. (optional) To retain workbooks from the <ORACLE_HOME>\discoverer902 directory for future use:
 - a. Move any Discoverer Version 9.0.2 workbooks from the <ORACLE_HOME>\discoverer902 directory to a new directory for use with Discoverer Version 9.0.4.
 - b. Delete the \discoverer902 directory.

Notes about upgrading to Discoverer Version 9.0.4

Notes about upgrading Oracle Applications EULs

When upgrading an Oracle Applications EUL, be aware that the MAXEXTENTS storage property of the EUL tables might have been increased to a value greater than the MAXEXTENTS storage property of the tablespace in which the EUL was created. If this situation exists, any attempt to upgrade the EUL will fail (e.g. with an ORA01631 error) because:

- the upgrade process uses the original EUL tablespace's MAXEXTENTS value when creating the new EUL tables
- the new EUL tables will therefore not be large enough to contain the data from the original EUL tables

If the MAXEXTENTS value of the EUL tables is greater than the MAXEXTENTS value of the EUL's tablespace, ask your database administrator to increase the MAXEXTENTS value of the original EUL's tablespace before attempting to upgrade the EUL. The new EUL tablespace and the new EUL tables will be created with the larger MAXEXTENTS value.

Notes about upgrading EULs that contain analytic functions

When you upgrade a Discoverer Release 4.1 EUL to a Discoverer Version 5 EUL, new Oracle9i analytic functions are added to EUL tables.

Where existing user-defined functions have the same name (or the same unique identifier) as the new functions, Discoverer does the following:

- renames the existing user-defined function
- displays a log message at the end of the upgrade process
- gives you the option to save the messages to a log file

Note: Discoverer's internal reference system ensures that Discoverer end users can still open workbooks that contain renamed user-defined functions.

Notes about upgrading the Video Stores tutorial

The Video Stores tutorials are specific to particular Discoverer releases.

When you upgrade to a new version of Discoverer, we therefore recommend that you re-install the Video Stores tutorial using the appropriate version of Discoverer Administrator instead of upgrading the tutorial.

Notes about upgrading scheduled workbooks

When you upgrade a Release 3.1 EUL to a Release 4.1 EUL, you have to run a separate executable (called `dis4sch.exe`) to upgrade scheduled workbooks (for more information, see the Discoverer 4.1 Release Notes).

When you upgrade a Release 4.1 EUL to a Version 5 EUL, scheduled workbooks are automatically upgraded. However, scheduled workbook results are not copied to the Version 5 EUL. The results for an upgraded scheduled workbook will only be available after the scheduled workbook has next run.

Notes about upgrading workbooks saved in .dis files

If Discoverer Desktop users save workbooks to the filesystem in `.dis` files, the `.dis` files have to be upgraded before they can be used with the latest version of Discoverer.

To upgrade the `.dis` files, users simply open the `.dis` files in the latest version of Discoverer and save the files back to the filesystem, or to the database (to open them in Discoverer Plus and Discoverer Viewer). Note that when a `.dis` file has been upgraded, users of earlier versions of Discoverer Desktop will not be able to open the file.

Notes about upgrading Discoverer systems that use the EUL Gateway

A Discoverer system might use the EUL Gateway to populate EULs with metadata from a source other than the database's on-line dictionary (e.g. from Oracle Designer).

If you upgrade such a system, you will have to re-install and re-configure the EUL Gateway after the upgrade process is complete. For more information about installing and configuring the EUL Gateway, see the `eulgatw.doc` document located in the `<ORACLE_HOME>\discoverer\kits` directory.

Notes about upgrading summary folders containing SET operators

When you upgrade a Release 3.1 EUL to a Release 4.1 EUL on an Oracle 8.1.7 (or later) Enterprise Edition database, be aware that summary folders based on SET operators (e.g. UNION, UNION ALL, MINUS, INTERSECT) might be invalidated.

During the upgrade process, summary folders are converted to materialized views. However, the Oracle 8.1.7 (or later) Enterprise Edition database imposes restrictions on the use of SET operators (e.g. UNION, UNION ALL, MINUS, INTERSECT) in materialized views.

Note that the restrictions on the use of SET operators in materialized views have been removed in Oracle 9.2 (or later) databases.

Notes about upgrading identifiers containing invalid characters

In a future release of Discoverer, there will be a change to the valid characters that can be used in identifiers and some characters will be de-supported (for more information, see "[What are identifiers?](#)").

If you upgrade an EUL that has identifiers containing invalid characters, messages will be displayed indicating the affected identifiers. Please modify any identifiers that use the invalid characters so that the identifiers can be used in future releases of Discoverer.

Part II

Reference information

This section contains general reference information including descriptions of all Oracle Discoverer Administrator dialogs.

Reference dialogs

Reference dialogs

This chapter contains comprehensive reference information for each dialog in Discoverer Administrator.

List of reference dialogs

This section contains an alphabetical list of links to the reference dialogs used in Discoverer Administrator.

- ["Add Combinations of Items dialog"](#)
- ["Add Items to Summary Folder dialog"](#)
- ["Alphabetical Sort dialog"](#)
- ["Business Area Properties dialog"](#)
- ["Changing Identifier Warning dialog"](#)
- ["Choose Folder dialog \(for an item, condition or join\)"](#)
- ["Choose user or table/view dialog"](#)
- ["Condition Properties dialog"](#)
- ["Confirm Business Area Delete dialog"](#)
- ["Confirm Delete dialog"](#)
- ["Confirm Folder Delete dialog"](#)
- ["Connect dialog"](#)
- ["Create EUL Wizard dialog"](#)

"Create EUL Wizard: Step 2 dialog"
"Create EUL Wizard: Step 2 dialog (Oracle Applications EUL)"
"Custom Folder dialog"
"Custom Folder Properties dialog"
"Database Information dialog"
"Database Storage Properties dialog: List of tabs"
"Database Storage Properties dialog: Materialized Views tab"
"Database Storage Properties dialog: Mappings tab"
"Database Storage Properties dialog: Properties tab"
"Database Storage Properties dialog: Tablespace tab"
"Date formats dialog"
"Delete EUL dialog"
"Edit Calculation dialog"
"EUL Manager dialog"
"EUL Upgrade Error dialog"
"EUL Upgrade dialog"
"Export Wizard Step 1 dialog"
"Export Wizard: Step 2 dialog (to export selected business areas)"
"Export Wizard Step 2 dialog (to export selected objects)"
"Export Wizard: Step 2/3 dialog"
"Folder Properties dialog"
"Hierarchy Wizard dialog"
"Hierarchy Wizard: Step 3 dialog (items that use date hierarchy)"
"Hierarchy Wizard: Step 3/4 dialog (name hierarchy)""Impact dialog"
"Impact dialog"
"Import PL/SQL Functions dialog"
"Import Wizard: Step 1 dialog"
"Import Wizard: Step 2 dialog"

"Import Wizard: Step 3 dialog,"
"Install/Uninstall Tutorial Wizard: Step 1 dialog"
"Install/Uninstall Tutorial Wizard: Step 2 dialog"
"Install Tutorial Wizard: Step 3 dialog"
"Item Class Wizard dialog"
"Item Class Wizard: Advanced options for list of values dialog"
"Item Class Wizard: Choose Attributes dialog"
"Item Class Wizard: Select Item dialog (if you chose alternative sort)"
"Item Class Wizard: Select Item dialog (on which to base LOV)"
"Item Class Wizard dialog (select items that use this item class)"
"Item Properties dialog"
"Items dialog"
"Join Properties dialog"
"Join Wizard: Step 1 dialog"
"Join Wizard: Step 2 dialog"
"Load Wizard: Step 1 dialog"
"Load Wizard: Step 2 dialog"
"Load Wizard: Step 3 dialog"
"Load Wizard: Step 4 dialog"
"Load Wizard: Step 5 dialog"
"Manage Folders dialog: By Business Area tab"
"Manage Folders dialog: By Folder tab"
"Manage Folders dialog: Orphaned Folders tab"
"Manage Scheduled Workbooks dialog"
"Name Summary Folder dialog"
"New Condition dialog (Advanced)"
"New Condition dialog (select an item or folder for)"
"New/Edit Condition dialog"

"New Date Format dialog"
"New Item dialog (select a folder for)"
"New Item dialog"
"New Join dialog (select a folder for)"
"Online Dictionary Options dialog"
"Open Business Area dialog"
"Options dialog: Connection tab"
"Options dialog: Default EUL tab"
"PL/SQL Functions dialog: Arguments tab"
"PL/SQL Functions dialog: Functions tab"
"Privileges dialog: Privileges tab"
"Privileges dialog: Query Governor tab"
"Privileges dialog: Scheduled Workbooks tab"
"Privileges dialog: User/Role tab"
"Properties dialogs"
"Refresh Business Area dialog"
"Refresh Summaries dialog"
"Refresh Summary Folder dialog"
"Refresh Wizard dialog"
"Repository Users dialog"
"Responsibilities dialog"
"Schedule Workbook dialog: General tab"
"Scheduled Workbook dialog: Parameter values"
"Schedule Workbook dialog: Schedule tab"
"Security dialog: Business Area - > User tab"
"Security dialog: Users - > Business Area tab"
"Select items to include in this hierarchy dialog"
"Summary Properties dialog"

"Summary Wizard (ASM): List of dialogs"

"Summary Wizard (ASM): Change default settings: List of dialog tabs"

"Summary Wizard (ASM): Change default settings dialog: Folders tab"

"Summary Wizard (ASM): Change default settings dialog: Analyze tab"

"Summary Wizard (ASM): Change default settings dialog: Deletion tab"

"Summary Wizard (ASM): Change default settings dialog: Query Usage tab"

"Summary Wizard (ASM): Change default settings dialog: Query User tab"

"Summary Wizard (ASM): Not Analyzed dialog"

"Summary Wizard (ASM): Recommended Summaries dialog"

"Summary Wizard (ASM): Step 2 Analyze Folders dialog"

"Summary Wizard (ASM): Step 3 Allocate Space dialog"

"Summary Wizard: Step 1 dialog"

"Summary Wizard: Step 2 dialog"

"Use Query Statistics dialog"

"Using External Tables dialog"

"Using Help"

"Values dialog"

"Workarea: Data tab"

"Workarea: Hierarchies tab"

"Workarea: Item Classes tab"

"Workarea: Summaries tab"

Add Combinations of Items dialog

Use this dialog to specify when you want Discoverer to use summary folders.

This dialog is also displayed as:

Summary Wizard: Step 4

Summary Wizard: Step 5

Edit Summary dialog: Combinations tab

For more information, see:

["What is manual summary folder creation?"](#)

["What are summary combinations?"](#)

["What to consider when defining summary combinations?"](#)

["Guidelines for setting up summary combinations"](#)

["How to create summary folders based on items in the EUL"](#)

Add combinations of items to this summary folder by clicking "Add Combination" and checking desired items

You need to choose the summary combinations that are to be pre-built and managed by the End User Layer. Each summary combination should reflect the type of analysis the user will want. The Summary Wizard displays one column for each possible summary combination of axis items and summary folders.

In each column, select the check box for each axis item in a summary combination to create a summary folder that reflects your requirements. Discoverer will build the results data for the summary folder when you finish using the wizard. The results data is available when a Discoverer end user runs a worksheet where the query matches a summary combination from this summary folder.

Add Combination

Use this button to add a new summary combination column.

Remove Combination

Use this button to delete the selected summary combination column.

Estimate Space

Use this button to display an estimate of the database space required to store the summary combinations you have created.

Properties

Use this button to view and edit database storage properties for the selected summary combination. For more information, see "[Database Storage Properties dialog](#)".

Status

This field displays the status and any database error message for a selected summary combination. If the summary folder for this combination was not built, Discoverer displays the server error message here. For more information about Status field values, see the "[Summary Properties dialog](#)" Notes section.

Add Items to Summary Folder dialog

Use this dialog to select which items to add to a summary folder.

Note: You can select any axis items and math functions, but if the items are from different tables, a join must exist between the tables.

This dialog is also displayed as:

Summary Wizard: Step 3

Summary Wizard: Step 4

Edit Summary dialog: Choose items tab

For more information, see:

["What are summary folders?"](#)

["What is manual summary folder creation?"](#)

Available items

Use this field to select items to add to the summary folder.

To select an item to add to the summary folder, move it from the **Available items** field to the **Selected items** field.

Selected items

This field contains items selected for the summary folder.

Alphabetical Sort dialog

Discoverer displays this warning dialog when you attempt to sort:

- folders within a business area
- items within a folder.

For more information about folders and items, see:

["What are folders?"](#)

["What are items?"](#)

n Folders/Items will be alphabetically sorted. The existing order will be lost.

The above message displays the number of folders or items (n) that will be alphabetically sorted and also indicates that the existing display order will be lost if you click the Yes button.

Do you want to continue?

Don't show this dialog again

Select this check box to disable further display of this warning during the current session.

Yes

Use this button to proceed.

Discoverer will sort the folders/items.

No

Use this button to abandon the alphabetical sort.

Discoverer will display the Workarea.

Business Area Properties dialog

Use this dialog to view or change the properties of a business area. For example, to change a business area name, description, or identifier.

For more information, see:

["What are business areas?"](#)

["How to edit business area properties"](#)

This dialog has two tabs: General and Dependents. Click each tab to view or edit properties.

General tab

Name

This field displays the business area name.

Description

This field displays a text description of the business area.

The contents of this field are displayed in the description line of the Discoverer Plus Query Wizard (for more information, see the *Oracle Application Server Discoverer Plus User's Guide*).

Identifier

A unique name that Discoverer uses to identify EUL and workbook objects. When matching objects common to different EULs, Discoverer uses identifiers to locate objects in different EULs that refer to the same business object. For more information, see [Chapter 3, "What are identifiers?"](#).

Warning: It is not advisable to change an identifier as it can affect the relationships between EUL objects.

Dependents tab

Note that dependents do not apply at the business area level.

Changing Identifier Warning dialog

This dialog is displayed when you attempt to save changes to an item's identifier, to warn you of the implications of changing an identifier.

Identifiers are unique names that Discoverer uses to identify EUL and workbook objects (e.g. business areas, folders, items, worksheets, parameters, joins, conditions, calculations). For example a folder named Sales in EUL 'A' might refer to the same business object to which the folder Sales Figures in EUL 'B' refers. Both folders have the same identifier and can therefore be recognized as being the same object.

Warning: It is not advisable to change an identifier as it can affect the relationships between EUL objects.

Some examples of why you might want to change an identifier are as follows:

- to comply with strict naming conventions
- where an object has been deleted and needs to be recreated with the same identifier

If you do change an identifier, then matching identifiers in other EULs should also be updated to reflect the change.

Are you sure you want to proceed?

Yes

Use this button to proceed. This enables you to make changes to the identifier.

No

Use this button to abandon the change.

Discoverer displays the Properties dialog.

Don't show this warning again during this session

Select this check box to disable display of this warning during a session.

Choose Folder dialog (for an item, condition or join)

Use this dialog to select a folder in which to store new items, conditions, or joins. Discoverer might display the Choose Folder dialog in any of the following cases:

- the currently selected folder does not use the condition you are about to create
- a folder is not selected on the Join Manager dialog and you click Change folder in the drop down list

This dialog is also displayed as:

New Join dialog

For more information, see:

["What are folders?"](#)

["What are items?"](#)

["What are joins?"](#)

["What are conditions?"](#)

Business area

Use this drop down list to select a business area.

Choose a folder from the expandable item list below.

Choose Join dialog

Use this dialog to select one or more joins once you have added items to a complex folder.

Discoverer displays the Choose Join dialog when you select items from two folders that are joined using more than one join.

For more information, see:

["About joining two folders using more than one join"](#)

["How to create complex folders"](#)

Choose Join

Use this field to select one or more joins.

Choose user or table/view dialog

Use this dialog to choose the database user or the table or view that you want to use for the current object. For example when:

- choosing a database user as the Owner of a folder (for further information, see ["Folder Properties dialog"](#))
- selecting a table or view when creating an external summary folder (for further information, see [Chapter 14, "How to create summary folders based on external summary tables"](#)).

This dialog is also displayed as:

Choose user dialog

For more information, see:

["What are folders?"](#)

["What is manual summary folder creation?"](#)

Database

Use the drop down list to select the database that contains the required user or table/view.

Use the list to select the user or table/view that you want.

Condition Properties dialog

Use this dialog to view or change the properties of a condition.

Note: Where more than one condition is selected, if you choose the Properties option then any changes made to a property will affect all the selected conditions.

For more information, see:

["What are conditions?"](#)

Name

Use this field to enter a descriptive condition name. This name appears in condition lists, and on Discoverer worksheets.

Description

Use this field to enter a brief description for the condition. This description is displayed in condition lists to help Discoverer users choose which condition they want to use.

Type

Use this drop down list to specify the condition as Mandatory and Optional as follows:

- Mandatory conditions always apply to a folder. The Discoverer end user does not see the condition in Discoverer Plus and cannot turn it off.
- Optional conditions can be applied or not applied. This offers Discoverer end users the choice to turn the condition on or off in Discoverer Plus.

Sequence

This field displays the order in which this item appears in the Discoverer Plus Object Selection Wizard. For example, you might want to display all conditions before items.

Formula

This field displays the formula that defines the condition.

Click this field to display the ["Edit Condition dialog"](#).

For more information about valid server syntax, see the *Oracle Server SQL Language Reference Manual*.

Identifier

A unique name that Discoverer uses to identify EUL and workbook objects. When matching objects common to different EULs, Discoverer uses identifiers to locate objects in different EULs that refer to the same business object. For more information, see [Chapter 3, "What are identifiers?"](#).

Warning: It is not advisable to change an identifier as it can affect the relationships between EUL objects.

The Dependents tab displays two columns:

Type

Displays one or more object types (e.g. folders, items) that have a dependency on the selected condition.

Name

Displays the name of each object listed in the Type column

Confirm Business Area Delete dialog

Use this dialog to manage how you delete a business area. For example, to check the impact of removing a business area before doing so.

Note: Folders that have no business area become orphaned folders. These folders still exist in the EUL, but are no longer visible in the Workarea. You can view and delete orphaned folders by using the Tools | Manage Folders option from the Discoverer main menu.

For more information, see:

["What are business areas?"](#)

["How to delete a business area"](#)

Are you sure you want to delete this business area?

- **Delete this Business Area**

Use this radio button to remove only the business area, but not the contents of the business area.

- **Delete this Business Area and its Folders**

Use this radio button to remove the business area and all of the folders. This option does not remove folders from any other business area.

Yes

Use this button to remove the selected business area.

No

Use this button to cancel the action, and close this dialog with no change to the business area or EUL.

Impact

Use this button to display the ["Impact dialog"](#). The Impact dialog displays a list of all objects that will be affected or removed if you remove the selected business area.

Confirm Folder Delete dialog

Use this dialog to manage how you delete a folder. For example, to check the impact of removing a folder before doing so.

Note: A folder removed from the business area but not the EUL, and which is not referenced in any other business area is known as an orphan folder.

For more information, see:

["What are folders?"](#)

["How to delete folders from a business area"](#)

Are you sure you want to delete this folder?

- **Delete from this Business Area**

Use this radio button to remove the selected folder from the current business area, but not delete the folder from the EUL. This means that you can still use this folder in other business areas.

- **Delete from the End User Layer**

Use this radio button to remove the selected folder from the business area and from the EUL. You will no longer be able to use this folder in this or any other business area in the EUL.

Impact

Use this button display the ["Impact dialog"](#). The Impact dialog displays a list of all objects that will be affected or removed if you delete the selected folder.

Confirm Delete dialog

Use this dialog to manage how you remove an item. For example, to check the impact of removing an item before doing so.

Yes

Use this button to removes the selected item from the business area.

No

Use this button to cancel the action and close the dialog without changing the business area.

Impact

Use this button to display the "[Impact dialog](#)". The Impact dialog displays a list of all objects that will be affected or removed if you remove the selected item.

Connect dialog

Use the Connect dialog to connect to a different End User Layer. This dialog also appears when you first run Discoverer Administrator. You cannot work in Discoverer Administrator unless you are connected to an EUL.

Notes

- When you connect to Oracle Applications EULs, the Connect dialog prompts you to enter your Oracle Applications connect details, (see the Status area in the Connect dialog). If Discoverer is not configured to use Oracle Applications EULs, you need to reconfigure your Connect dialog. Choose Tools | Options to configure Discoverer to connect to Oracle Applications EULs.

For more information, see:

["Differences with the Discoverer Connect dialog in Oracle Applications mode"](#)

Username

Use this field to enter your authorized database user name.

Password

Use this field to enter authorized database password to match the user name.

Connect

Use this field to enter the name of the database that you are connecting to.

Note: To connect to the local database (on your hard drive), leave this field empty, (unless you are connecting to an Oracle8i database or later).

Oracle Applications User

This optional check box is displayed when Discoverer is configured to use both standard Discoverer EULs and Oracle Applications EULs.

If you DO NOT want to connect to an Oracle Applications EUL, make sure that this option is NOT selected.

If you DO want to connect to an Oracle Applications EUL, make sure that this option is selected.

Connect button

Use this button to connect to the database using the connection details entered.

Note: You cannot be connected to more than one End User Layer at a time. When you establish a new connection, all open business areas close and the connection to the current database terminates. You are prompted to save any changes before the new connection is established. If the new connection fails, you remain connected as the original user id.

Create EUL Wizard dialog

Use the Create EUL Wizard to help you create a new End User Layer (EUL). In this dialog you define the owner of the new EUL.

For more information, see:

["What is an End User Layer?"](#)

Who will own the EUL?

- **Select an existing user**

Use this radio button to create an EUL for an existing database user in the current database. Select the database user from the User drop down list.

Note: If the database user already owns an EUL, the new EUL will replace the existing EUL.

- **Create a new user**

Use this radio button to create a new database user and an EUL for that database user. You must have sufficient database privileges to create a new user (for more information, see ["What privileges do you need to create an End User Layer in an Oracle database?"](#)).

Grant EUL access to PUBLIC

Select this check box to specify that the new EUL is accessible to all users in the current database.

Clear this check box to specify that the EUL owner is the only database user that is able to access data through this EUL.

Note: It is recommended that you clear the **Grant EUL access PUBLIC** check box, where security is an issue. The EUL owner can subsequently define business area access and privileges for users and roles as required (for more information, see ["Controlling access to information"](#)).

New EUL is for use by Oracle Applications users ONLY

Select this check box to restrict EUL access to Oracle Applications users. Clear this check box to create a standard EUL.

Enter the EUL user's password

User

If you want a new database user to own the new EUL, use this field to enter a username for the new database user.

If you want an existing database user to own the new EUL, use this dropdown list to specify the username for the new database user.

Password

If you want a new database user to own the new EUL, use this field to enter a password for the new database user.

If you want an existing database user to own the new EUL, use this field to enter the password for that user.

This field is grayed out if you have specified that the current user (i.e. the username you used to start Discoverer Administration) will own the EUL.

Confirm password

If you want a new database user to own the new EUL, use this field to re-enter the password for the new user.

This field is grayed out if you have specified that an existing user will own the new EUL.

Create EUL Wizard: Step 2 dialog

Use this dialog when you want a new database user to own a new EUL. Use this dialog to select the default and temporary tablespace for the new user.

Note: These settings are database settings.

This dialog is also displayed as:

Create EUL Wizard: Step 3 dialog

For more information, see:

["What is an End User Layer?"](#)

Default Tablespace

Use this field to select the database tablespace in which to store the Discoverer EUL tables, metadata, workbooks and worksheets for this user.

For more information about EUL space requirements and storage parameters, see [Chapter 3, "What are the space requirements and storage parameters for a typical EUL?"](#).

For a default configuration, you typically choose the USR tablespace here.

- **Tablespace**
Lists the available tablespaces in the database.
- **MB free**
Displays the amount of space available in the tablespace.
- **Auto Ext.**
Indicates whether the Auto Extend feature is On or Off for the tablespace in the database. When the Auto Extend feature is On, the tablespace will automatically increase in size when necessary.

Temporary Tablespace

Use this field to select the database tablespace where temporary data is stored for this user. For a default configuration, you typically choose TEMP here.

Create EUL Wizard: Step 2 dialog (Oracle Applications EUL)

Use this dialog when you are creating a new Oracle Applications EUL. Use this dialog to select the schema (containing the Oracle Applications FND (Foundation) tables) and enter a password for the schema. The FND tables contain the metadata for the Oracle Applications.

For more information, see:

["What is an End User Layer?"](#)

["What are Oracle Applications?"](#)

Select the schema containing the Oracle Applications FND tables

Schema

Use this drop down list to select the schema that contains the FND tables.

Password

Use this field to enter the password for the schema.

Custom Folder dialog

Use this dialog to create custom folders. You do this by entering a SQL select statement. Like other folders, custom folders require joins in order for their data to relate to other data in the business area.

For more information, see:

["What are custom folders?"](#)

["How to create custom folders"](#)

Enter the SQL to define the custom folder

Use this field to enter the SQL statement that will define the folder. For example:

```
SELECT ENAME, JOB, SAL FROM EMP@ORCL
```

The Discoverer Administrator then creates items for each of the select list items. In Discoverer Plus, end users can use custom folders to build queries in exactly the same way as for other folders.

You can enter up to 2 billion characters in this field.

Name

Use this field to enter a name for the folder.

Validate SQL

Use this button to validate the SQL statement at any time before saving it. An invalid SQL statement prompts an error message.

OK

Use this button to validate the SQL statement and save the custom folder.

Notes

- Discoverer allows you to save the custom folder even if the SQL is invalid. This allows for situations where the SQL needs to be inserted into the EUL before the actual database objects are created or made available. However, users will not be able to query it until the SQL is corrected.
- If the SQL is invalid and you wish to correct it, select the custom folder in the Data tab and right-click to access its Properties dialog. Double-click on the Custom SQL field to display the Custom Folder dialog.

- The maximum length of the SQL statement you can enter in this field depends on the operating system and/or hardware specification of your machine.

Custom Folder Properties dialog

Use this dialog to look at or change the properties of the currently selected custom folder.

For more information, see:

["What are custom folders?"](#)

Name

Use this field to enter a name for the folder.

Description

Use this field to enter a brief description for the folder.

Visible to user

Use this field to choose whether you want Discoverer end users to be able to see this folder in Discoverer Plus.

Valid

This read-only field displays Yes when the SQL statement used to create the custom folder is valid.

Custom SQL

Use this field to display the ["Custom Folder dialog"](#), where you can change the SQL statement used to create the folder.

Identifier

A unique name that Discoverer uses to identify EUL and workbook objects. When matching objects common to different EULs, Discoverer uses identifiers to locate objects in different EULs that refer to the same business object. For more information, see [Chapter 3, "What are identifiers?"](#).

Warning: It is not advisable to change an identifier as it can affect the relationships between EUL objects.

Notes

- The Custom SQL field contains the SQL statement that defined the folder. If the SQL statement is incorrect, the custom folder will not be functional in Discoverer Plus.

- To view the entire statement resize the Properties window.

Database Information dialog

Use this dialog to view the name of the database to which you are currently connected and the functions available. For example, to check that you have configured the database correctly.

For more information, see:

["What are the prerequisites for using Oracle Discoverer?"](#)

Connected to:

Use this field to find out the name of the database to which you are connected. This field is a concatenation of your user name, the @ symbol and the database name.

The list box displays database configuration information as well as any functionality not available to this database user and why the functionality it is not available.

Notes

If summary management is displayed as not available:

- Summary management will not be available to a newly created EUL owner.

The following privileges must be granted to enable summary management:

- analyze any
- create any materialized view
- drop any materialized view
- alter any materialized view
- global query rewrite

The above privileges can also be set up from the script eulasm.sql (located in the <ORACLE_HOME>\discoverer\util directory).

Database Storage Properties dialog: List of tabs

Use these tabs to edit the database storage properties for summary folders. For example, to change the tablespace allocation, cache setting or refresh type.

This dialog is also displayed as:

Database Storage Properties dialog

Note: Database storage properties do not apply to summary folders based on external summary tables.

For more information about summary folders, see:

["Managing summary folders"](#)

["Creating summary folders manually"](#)

["How to edit database storage properties of summary combinations for a summary folder"](#)

The Database Storage Properties dialog consists of four tabs:

Properties

Use the ["Database Storage Properties dialog: Properties tab"](#) to view and set database storage properties.

Mappings

Use the ["Database Storage Properties dialog: Mappings tab"](#) to view the mappings between the items in the summary combination and database columns.

Tablespaces

Use the ["Database Storage Properties dialog: Tablespaces tab"](#) to view storage attributes for available tablespaces, including the available space in each tablespace. This information can help you to select a tablespace on the Properties tab.

Materialized Views (Oracle 8.1.7 (or later) Enterprise Edition databases)

Use the ["Database Storage Properties dialog: Materialized Views tab"](#) to view and set database storage properties that are specific to Oracle 8.1.7 (or later) Enterprise Edition databases.

Database Storage Properties dialog: Materialized Views tab

Use this tab to view and set database storage properties that are specific to Oracle 8.1.7 (or later) Enterprise Edition databases.

Note: Database storage properties do not apply to summary folders based on external summary tables.

For more information, see:

["Managing summary folders"](#)

["What are materialized views?"](#)

["Creating summary folders manually"](#)

["How to edit database storage properties of summary combinations for a summary folder"](#)

The following table lists the properties and their default values, where appropriate. When you select a property, the panel at the bottom of the dialog displays a description of the purpose of the property.

Property	Default Value	Range	Create/Edit
Parallel Inserts	No	Yes/No/Default	yes
No. of Processes	1		yes, if Parallel Inserts set to yes
Logging	Same as user's tablespace	Yes/No	yes
Cache	No	Yes/No	yes, if Logging set to yes
Refresh Type	Full	Full/Incremental	yes
Refresh	On demand	On demand/On commit	
Last Refresh			no
Incremental Load			no
Stale			no

Parallel Inserts

Use this property to choose whether to use parallel inserts when refreshing summary folders.

No. of processes

Use this property (if Parallel Inserts is set to Yes) to set the number of parallel processes used when refreshing summary folders.

Logging

Use this property to enable or disable database logging.

Cache

Use this property to enable or disable database caching.

Refresh Type

Use this property to specify whether the summary folder Refresh Type is Incremental or Full.

- Incremental

Only rows that have changed in the detail tables will be applied to the summary folder.

For more information on the conditions required for incremental refresh, see the *Oracle9i Data Warehousing Guide*.

- Full

The summary folder is entirely rebuilt from the detail tables.

Refresh Mode

Use this property to specify whether the summary folder Refresh Mode is On demand or On commit.

- On demand

Select this option to refresh manually or through scheduled refreshes.

- On commit

Select this option to refresh every time the detail tables are updated. There is no need to schedule refreshes, and the scheduling option of the Summary Wizard is not enabled.

Restrictions apply as to when you can perform a refresh On commit. For more information, see the *Oracle9i Data Warehousing Guide*.

Last Refresh

This read-only property indicates the date when the last summary folder was refreshed.

Incremental Load

This read-only property indicates the types of inserts to the detail/fact table that can be incrementally refreshed.

- None
The materialized view cannot be incrementally refreshed.
- Direct Load
Only direct loads can be handled.
- DML
Only DML (data manipulation language) statements can be handled.
- Direct Load and DML
Both direct loads and DML can be handled.
- Direct Load and limited DML
Direct loads and a subset of DML will be handled (for more information, see the Oracle9i Database documentation)

Stale

This read-only property indicates whether the detail tables have changed since the last summary folder refresh.

Database Storage Properties dialog: Mappings tab

Use this read-only tab to find out how summary combinations are stored in the database. You can see how combination items map to columns in this materialized view.

Note: Database storage properties do not apply to summary folders based on external summary tables.

For more information, see:

["What are summary combinations?"](#)

["About folders and summary folders in Discoverer"](#)

["What to consider when defining summary combinations?"](#)

["Guidelines for setting up summary combinations"](#)

["How to edit database storage properties of summary combinations for a summary folder"](#)

Item

This column displays the name of the item in the business area.

Database column

This column displays the column to which the item is mapped.

Datatype

This column displays the data type of the item.

Notes

- The information on this tab is read-only.
- The Mappings tab does not apply where summary folders are based on external summary tables.

Database Storage Properties dialog: Properties tab

Use this dialog to view and set database storage properties and the materialized view name (or summary table name in Oracle Standard Edition databases).

Note: Database storage properties do not apply to summary folders based on external summary tables.

For more information, see:

["Managing summary folders"](#)

["Creating summary folders manually"](#)

["How to edit database storage properties of summary combinations for a summary folder"](#)

The following table lists the properties and their default values. When you select a property, the panel at the bottom of the dialog displays a description the purpose of the property and the datatype it will accept.

Property	Datatype	Default Value*	Range	Create/Edit
Table Owner**	alphanumeric	current user		yes
Table Name	alpha	EUL generated		yes
Tablespace**	alphanumeric	SYSTEM		yes
Initial Extent**	numeric	10K		yes
Next Extent	numeric	10K	minimum data block	yes
% Increase	numeric	50%	>=0%	yes
Min. Extent**	numeric	1	1-Maximum Extent	yes
Max. Extent	numeric	121	> Minimum Extent	yes
% Free	numeric	10%	0-100%	yes
% Used	numeric	40%	0-99%	yes
Status	alpha			no
# Rows	numeric			no
Error	alpha			no
Last Refreshed				no

Property	Datatype	Default Value*	Range	Create/Edit
Note: If you change a **non-dynamic storage property that affects existing summary data, Discoverer recreates the summary folder, this might take some time.				

Values for the attributes Status, # Rows, Error and Last Refreshed are only available for summary folders that have been built. Therefore, when you use the Summary Wizard, these fields are grayed out, but when you edit the summary folder, these fields display appropriate values.

Database Storage Properties dialog: Tablespaces tab

Use this read-only tab to view database storage attributes for available tablespaces, including the available space in each tablespace.

Note: Database storage properties do not apply to summary folders based on external summary tables.

For more information, see:

["Managing summary folders"](#)

["Creating summary folders manually"](#)

["How to edit database storage properties of summary combinations for a summary folder"](#)

Tablespace

This column displays the name of the tablespace.

Free Space

This column displays the amount of free space remaining in the tablespace.

Used Space

This column displays the amount of space currently used.

Extend

This column indicates whether the tablespace automatically extends when more space is required.

Date formats dialog

Use this dialog to manage date hierarchies for use in Discoverer workbooks.

This dialog is also displayed as:

Hierarchy Wizard: Step 2

Edit Hierarchy dialog: Date formats tab

You can create a date hierarchy in one of two ways:

- Create a custom format mask of your own (for more information, see the [New Format](#) button below).
- Choosing from a set of predefined date format masks

For more information, see:

["What are hierarchies?"](#)

["What are date items?"](#)

["What are date format masks?"](#)

Select date formats for the hierarchy

New Format

Use this button to display the ["New Date Format dialog"](#), where you can define a customized date format mask.

Description

This editable field displays a brief description of the data format currently selected in the right hand pane.

(Format pane)

To use a predefined format, select from the items listed in the left hand pane and move them to the right hand pane.

You can select more than one item by pressing the Ctrl key and clicking another item.

Promote

Use this button to move the selected item up one level in the hierarchy.

Demote

Use this button to move the selected item down one level in the hierarchy.

Delete EUL dialog

Use this dialog to verify the name of the EUL that you want to delete. Discoverer Administrator only enables you to delete the EUL to which you are currently connected.

For more information, see:

["What is an End User Layer?"](#)

["How to delete an End User Layer"](#)

EUL

This field displays the name of the EUL that you want to delete. Because you can only delete the current EUL, the name you see in this field is the name of the EUL to which you are currently connected.

OK

Use this button to delete the current EUL.

Cancel

Use this button if the name displayed in the EUL text box is not the EUL you want to delete.

To delete a different EUL, close the EUL Manager dialog and reconnect to the EUL you want to delete.

Edit Calculation dialog

Use this dialog to edit items and calculated items.

For more information, see:

["What are items?"](#)

["What are calculated items?"](#)

["How to edit calculated items"](#)

For example:

- to change the name or description of an item
- to change the name of a calculated item
- to amend the formula in a calculated item

Show

Use these radio buttons to display calculations, functions, and item that you can use to build a calculation. To include items in the calculation, paste them into the **Calculation** field.

- **Items**

Use this radio button to display the EUL items available.

- **Functions**

Use this radio button display the functions available.

Paste

Use this button to the add the item currently selected in the **Show** list to the Calculation. The item is copied into the **Calculation** field.

Name

Use this field to edit the name of the item or calculated item.

Calculation

Use this field to enter the calculation details (for calculation examples, see *Oracle Application Server Discoverer Plus User's Guide*).

To create a calculation, you one or more of the following methods:

- Type the formula directly into the **Calculation** field.

Note: If you type an expression in the **Calculation** field, you must prefix the expression with an equals sign (i.e. =). For example, '=Sales SUM-Costs SUM'.

- Paste items and functions from the **Show** field on the left into the calculation.
- Click the operator buttons underneath the **Calculation** field to use them in the calculation.

Operator buttons + - x / % ()

Use these buttons to add operators to the calculation. Operators are copied into the **Calculation** field.

Note: When you use arithmetic expressions in a calculation, the multiply and divide operators are executed first, regardless of their position in the calculation. If you have more than one operator of the same precedence, they are evaluated from left to right.

For example, the calculation Price – Discount * Quantity is evaluated as Discount*Quantity subtracted from Price. If you use parentheses around the subtraction expression (Price – Discount), the subtraction is executed before the multiplication.

OK

Use this button to validate and save the calculation, as follows:

- If the calculation has valid syntax, the calculation is saved and displayed in the Calculations dialog.
- If the calculation has invalid syntax, an error message is displayed. You must correct any syntax errors before you can save the calculation.

Notes

- The table below shows the functions available in the field beneath the **Show** field:

Category	Description
All Functions	An alphabetical list of all functions.
Analytic	Advanced statistical analysis, such as RANK, NTILE, CORR.
Conversion	Converting from one data type to another, such as: RAWTOHEX, TO_CHAR, TO_DATE.

Category	Description
Database	Optional category that is displayed when user defined functions are available (created using the Register PL/SQL Functions facility on the Tools menu).
Date	Manipulating date items such as ADD_MONTHS, NEW_TIME, SYSDATE and NEXTDATE.
Group	Aggregate and statistical functions including SUM, COUNT, MAX, MIN, VARIANCE.
Numeric	Numeric items, transcendentals and floating point such as COS, LOG, MOD, POWER.
Others	Miscellaneous functions such as LEAST, USER, DECODE, ROWNUM.
String	Character items, text operations such as INITCAP, LPAD, NLS_UPPER.

- For detailed information about all functions available in Discoverer, see *Oracle8i/9i SQL Reference* and *Oracle8i/9i Data Warehousing Guide*.
- For examples of the most commonly used functions, see *Oracle Application Server Discoverer Plus User's Guide*.

EUL Manager dialog

Use this dialog to create and maintain End User Layers (EULs). This dialog also enables you to install the Discoverer tutorial in the current EUL. The Discoverer tutorial is an example business area that you can make available to Discoverer end users, enabling them to create and view workbooks and worksheets.

For more information, see:

["What is an End User Layer?"](#)

["How to create an End User Layer for an existing database user"](#)

["How to delete an End User Layer"](#)

Connected to EUL: <EULName>

This field displays the name of the EUL to which you are currently connected.

Create an EUL

Use this button to display the ["Create EUL Wizard dialog"](#), where you can:

- create a new EUL for the current user or another user in the database.
- create a new user and an EUL for that user at the same time, providing you have sufficient database privileges (for more information, see ["What privileges do you need to create an End User Layer in an Oracle database?"](#)).

Delete an EUL

Use this button to display the ["Delete EUL dialog"](#), where you delete the current EUL. Note that you can only delete the current EUL.

Install the Tutorial

Use this button to display the ["Install/Uninstall Tutorial Wizard: Step 1 dialog"](#), where you install the tutorial data into the current EUL. If the tutorial data has not been installed before, you must have sufficient database privileges to create the tutorial user (for more information, see ["What privileges do you need to create an End User Layer in an Oracle database?"](#)).

Uninstall the Tutorial

Use this button to display the ["Install/Uninstall Tutorial Wizard: Step 1 dialog"](#), where you delete the tutorial database tables and data from the current EUL. Note that the tutorial database user is not deleted.

EUL Upgrade Error dialog

Use this dialog to find out about errors that have occurred during the EUL Upgrade process. This dialog appears automatically during the upgrade process if an error has occurred. The error messages displayed in this dialog enable you to diagnose and correct upgrade issues.

Notes

- Make sure that you make a note of the error message before closing the dialog.
- When you have resolved the error, reconnect to the EUL and the upgrade will resume automatically.

The error message typically includes an Oracle Database Error number. For example, the error number ORA-02298 is displayed when a table has orphaned child records. For more information about Oracle database error messages, see *Oracle9i Database Error Messages* in the Oracle documentation library.

For more information, see:

["Upgrading from earlier versions of Discoverer"](#)

["What is an End User Layer?"](#)

EUL Upgrade dialog

This dialog informs you that you must upgrade the EUL tables before you can use the current version of Discoverer Administrator.

Upgrading the EUL tables requires existing users to install the equivalent version of Discoverer Plus in order to continue running queries and reports.

We recommend that you export the EUL tables before starting the upgrade process.

For more information, see:

["Upgrading from earlier versions of Discoverer"](#)

["What is an End User Layer?"](#)

["How to export an EUL using the standard database export utility"\)](#)

Yes, I have completed a database export

Select this check box to confirm that you have backed up the EUL by performing a database export. When you have selected this check box, the Upgrade button is enabled.

Upgrade

Use this button to begin the EUL upgrade.

Export Wizard Step 1 dialog

Use this dialog to choose the Discoverer objects that you want to export to a file. You can export the entire EUL, one or more business areas, one or more EUL objects (e.g. folders, item classes, workbooks, the automated summary management (ASM) policy).

For more information, see:

["About copying EULs and EUL objects by exporting and importing"](#)

["Creating and maintaining business areas"](#)

Export the entire End User Layer (EUL) if you want to copy its objects into a new EUL, or create a backup. Export selected business areas or selected EUL objects if you want to update an existing EUL.

What do you want to export?

- **The entire End User Layer**

Use this radio button if you want to export the entire EUL to a file (i.e. all business area definitions, folders, item classes, item hierarchies, date hierarchies, PL/SQL function registration information, summary folders, workbooks and the automated summary management (ASM) policy).

- **Selected Business Areas**

Use this radio button if you want to export one or more business areas to a file (i.e. selected business area definitions and their folders, item classes, item hierarchies, date hierarchies, PL/SQL function registration information, summary folders, workbooks and the automated summary management (ASM) policy).

- **Selected objects in the End User Layer**

Use this radio button if you want to export one or more EUL objects to a file (i.e. selected business area definitions, folders, item classes, item hierarchies, date hierarchies, PL/SQL function registration information, summary folders, workbooks and the automated summary management (ASM) policy).

Notes

- Note that you are only exporting the definition of the EUL, the business area, or the object being exported. You are not exporting the database containing the EUL tables, or the EUL tables themselves. Nor are you exporting the database

objects referenced by the EUL objects. If you import a business area or object into a database, the following conditions must apply before Discoverer end users can view the data referenced by the imported business area or object:

- the database tables referenced by the imported business area or object must exist in the database
- database users must have sufficient privileges to access the database, the EUL tables, and the database objects, that the imported business area or object reference (for more information, see "[Controlling access to information](#)" and "[What are the data access prerequisites?](#)")

Export Wizard: Step 2 dialog (to export selected business areas)

Use this dialog to select the business areas to export.

This dialog is also displayed as:

Export Wizard: Step 2 dialog

For more information, see:

["What is an End User Layer?"](#)

["About copying EULs and EUL objects by exporting and importing"](#)

Which business areas do you want to export?

Available

This field displays all accessible business areas in the EUL.

To export a business area, move it from the **Available** field to the **Selected** field.

Selected

This field displays the business areas that will be exported.

To select a business area, move it from the **Available** field to the **Selected** field.

Export Wizard Step 2 dialog (to export selected objects)

Use this dialog to select EUL objects to export (e.g. business area definitions, folders, workbooks) .

This dialog is also displayed as:

Export Wizard: Step 2 dialog

For more information, see:

["What is an End User Layer?"](#)

["About copying EULs and EUL objects by exporting and importing"](#)

Which objects do you want to export?

Use this drop down list to select the type of object to display in the **Available** field (e.g. business area definitions, folders, item classes, item hierarchies, date hierarchies).

Available

This field displays all available objects in the EUL for the currently selected object type (e.g. if you chose item classes from the **Which objects do you want to export** drop down list, all item classes in the EUL are listed in this field).

To export an EUL object, move it from the **Available** field to the **Selected** field.

Selected

This field displays the EUL objects that you want to export.

Relationships between business areas and folders are displayed in the **Selected** field.

To select an EUL object, move it from the **Available** field to the **Selected** field.

Export Wizard: Step 2/3 dialog

Use this dialog to specify where you want to save the export file.

You can also:

- save workbooks in XML
- save export commands as a text file (*.txt)

This dialog is also displayed as:

Export Wizard: Step 2 dialog

Export Wizard: Step 3 dialog

For more information, see:

["What is an End User Layer?"](#)

["About copying EULs and EUL objects by exporting and importing"](#)

Where do you want to save the file?

Use this field to specify the name and location of the export file in which to save the exported objects. The export file will have .eex as the suffix.

Use the Browse button to specify the export file name and location using the Save As dialog.

Hint: It is a good idea to give the export file a name that suggests the kind of EUL objects the file contains. A descriptive name makes it easier to locate the file when you want to import it into another EUL later.

The following objects will be exported:

This field displays all of the objects that will be exported to the export file.

Generate additional XML for exported workbooks

Select this check box to save workbooks in XML format within the .eex file.

Clear this check box to only save workbooks in binary format within the .eex file.

Discoverer Administrator saves exported EUL objects in XML format in the export file, with the exception of workbooks. By default, workbooks are saved in binary format. By saving workbooks additionally in XML format you can view workbook definitions in an XML browser.

Save export commands as text file (*.txt)

Select this check box to create an additional text file containing the commands that were used to create this export. You might save export commands as a text file, in order to re-use them in the Discoverer command line interface (for more information, see [Chapter 21, "About using the Discoverer command line interface"](#)).

Notes

- Note that you only export the definition of the EUL, the business area, or the object being exported. You are not exporting the database containing the EUL tables, or the EUL tables themselves. Nor are you exporting the database objects referenced by the EUL objects. If you import a business area or object into a database, the following conditions must apply before Discoverer end users can view the data referenced by the imported business area or object:
 - the database tables referenced by the imported business area or object must exist in the database
 - database users must have sufficient privileges to access the database, the EUL tables, and the database objects, that the imported business area or object reference (for more information, see "[Controlling access to information](#)" and "[What are the data access prerequisites?](#)")

Folder Properties dialog

Use this dialog to configure properties for the currently selected folder. For example, to change the name of a folder, or the owner of a table.

For more information, see:

["What are folders?"](#)

The Folder Properties dialog contains three tabs:

- ["General tab"](#)
- ["Dependents tab"](#)
- ["Components tab \(complex folders\)"](#)

General tab

Use this tab to configure the properties of the current folder.

Name

Use this field to enter a unique name for the folder. The contents of this field are displayed in the Discoverer Plus folder selection dialog. The name of the folder must be unique in the End User Layer. You cannot have two folders with the same name, even in different business areas.

Description

Use this field to enter a brief description of the folder. The contents of this field are displayed on the description line of the Query Wizard.

Visible to user

Use this field to specify whether the folder is displayed to the end user in the Discoverer Plus Query Wizard. Choose Yes to display this folder. You can use this property to hide items that are not directly of value to the end user, but need to be included in the business area because of joins or calculations. Folders not visible to the end user will be displayed in Discoverer Administrator in gray to indicate their hidden status.

Database

This field specifies the location of the source database which stores the table corresponding to the folder. To change the database, click this field to display the Choose Database dialog and select from the drop down list.

Owner

This field specifies the database user ID or owner of the table or view corresponding to the folder.

To change the owner, either type in the owner directly or click on the field and then click the button to display the Choose user dialog where you can select from the list.

The Owner field can be left blank. In this case the owner property is not specified in subsequent SQL references (through Discoverer Plus) to that folder. For example, a SQL select statement could now read as follows:

```
select <column> from <table>
```

rather than:

```
select <column> from <owner>.<table>
```

This is useful as it enables you to create/maintain an EUL for which the tables or table owners are not yet available, or to which the EUL administrator does not have access. It also enables multiple users (such as Oracle Applications users) each with their own schema in an EUL, to access their schema tables when making queries in Discoverer Plus.

Object

This field displays the name of the database object that corresponds to this folder. If a new table or view name has been chosen, it will appear here. To change the object, click this field to display the "Choose user or table/view dialog" and select from the list. You can choose an object from a different owner or a different business area.

If you select an Object name, the Database and Owner fields will also be re-populated with the database and owner values of the selected Object (irrespective of whether the Owner field was blank or not).

Optimizer hints

Use this field to place a specific optimizer hint against the folder. The hint is not visible in Discoverer Plus. For more information about how to use optimizer hints, see an appropriate release of the *Oracle designing and tuning for performance* documentation.

Identifier

A unique name that Discoverer uses to identify EUL and workbook objects. When matching objects common to different EULs, Discoverer uses identifiers to locate

objects in different EULs that refer to the same business object. For more information, see [Chapter 3, "What are identifiers?"](#).

Warning: It is not advisable to change an identifier as it can affect the relationships between EUL objects.

Notes

- If the Owner field is left blank, summary tables (in Oracle Standard Edition databases) based on this folder are not allowed. If a summary folder already exists a warning message is displayed.
- If the Owner field is changed, summary tables (in Oracle Standard Edition databases) based on this folder need to be refreshed. If a summary folder already exists a message is displayed advising you to refresh the summary folders based on this folder.

Dependents tab

The Dependents tab displays two columns (Type and Name) that clarify the extent to which other objects (e.g. folders, joins, items, item classes, summaries, conditions, calculations, workbooks, scheduled workbooks) are dependent on the selected folder.

Type

This field displays the type of item that has a dependency on the current folder. For example, folders, conditions, summaries, workbooks, scheduled workbooks.

Name

This field displays the name of each item that has a dependency on the current folder.

Components tab (complex folders)

This tab displays all component folders (and their items) that are used by this complex folder.

Hierarchy Wizard dialog

Use this dialog to select the type of hierarchy that you want to create. For example, to select a date hierarchy when you want Discoverer end users to be able to drill into time-based data.

For more information, see:

["What are hierarchies?"](#)

["What are item hierarchies?"](#)

["How to create item hierarchies"](#)

["How to create date hierarchies and templates"](#)

Which type of hierarchy do you want to create?

- **Item hierarchy**

Use this radio button to select the item hierarchy type.

- **Date hierarchy**

Use this radio button to select the date hierarchy type.

Notes

- The hierarchical relationships that you create are not defined in the database, but in the business area.
- Item hierarchies are used to connect multiple items in a specified order, allowing your user to drill up and down to different levels of detailed information. For example, you can connect the columns country, region, district, and retail store to create a location-based sales hierarchy. Each higher item (country is higher than region, for example) being a super-set of the items below it. When you create this sales hierarchy, users can create a worksheet that displays sales by country, then drill down to get regional details for each country, and so on down to the retail store level.
- A date hierarchy lets your users drill up or down into date items from virtually any time-based perspective. For example, users can see sales data based on year, then drill down to quarter, and even further to month. Date hierarchies, unlike Item hierarchies, possess an inherent structure based on year, quarter, month, week, day, hour, minute, and second. Therefore, Discoverer Administrator uses pre-existing Date Templates to define many common

formats for date hierarchies. In addition, you can create customized date hierarchies.

Hierarchy Wizard: Step 3 dialog (items that use date hierarchy)

Use this dialog to specify which items in the business area use a defined hierarchy. For example, if you create a hierarchy: Year - Month - Week - Day, you might want to specify year, month, week, and day items here. When Discoverer users drill on these items, they can use this hierarchy in the drill path.

This dialog is also displayed as:

Hierarchy Wizard: Step 3

Edit Hierarchy dialog: Items tab

For more information, see:

["What are hierarchies?"](#)

["How to create date hierarchies and templates"](#)

Select date items that will use this date hierarchy. This is an optional step.

Available Items

Use this drop down list to select a business area.

Select the items to use this hierarchy from the expandable list below.

To select items, move them from the **Available Items** list to the **Selected Items** list.

Selected items

This field displays the selected items that will use this hierarchy..

Hierarchy Wizard: Step 3/4 dialog (name hierarchy)

Use this dialog to enter a name and description for a hierarchy.

This dialog is also displayed as:

Hierarchy Wizard: Step 3

Hierarchy Wizard: Step 4

Edit Hierarchy dialog: Name tab

For more information, see:

["What are hierarchies?"](#)

Hierarchy Name

Use this field to enter a name for the hierarchy.

Hierarchy Description

Use this field to enter additional information about the hierarchy.

Set as default date hierarchy

(Displays when you create a date hierarchy)

Select this check box for Discoverer to use this date hierarchy as the default date hierarchy.

Impact dialog

Use this dialog to assess the impact of refreshing or deleting an object (e.g. business area, folder, item, item class, join, condition, hierarchy).

Based on the information displayed, you can determine if it is safe to carry out the current action against the object.

For more information, see:

["Confirm Business Area Delete dialog"](#)

["Confirm Delete dialog"](#)

["Confirm Folder Delete dialog"](#)

Type

Use this column to view any dependent EUL objects that might be affected by the current action you are taking. The EUL objects listed here can include workbooks, scheduled workbooks, summary folders, business areas, folders, items, joins, conditions and item classes.

If you select a row, Discoverer displays text that indicates the effect the current action will have on the EUL object.

The following table lists the messages that Discoverer can display when workbooks, summary folders or other EUL objects are affected by the current action:

Scenario	Message Discoverer displays in Impact dialog
Workbook definitely affected	The object you are deleting is referenced by this workbook
Workbook might be affected	A probable impact to this workbook has been detected. Please open and close the workbook to re synchronize it with the current EUL.
Summary	You will need to remove the object from the summary before being able to delete it.
Item Class	This object will be updated.
All other eul objects	This will be deleted.

Name

Use this column to view the name of the EUL objects that might be affected by the current action you are taking.

Notes

- Discoverer Administrator does not refresh or delete dependent workbooks when you refresh or delete an EUL object. Subsequent use of a workbook however, will be affected when you delete an EUL object that has dependent workbooks.
- The Impact dialog displays dependent workbooks that are saved to the database. Dependencies might also exist in workbooks that are saved locally, such workbooks are not displayed in the Impact dialog.
- Discoverer does not delete an EUL object that has dependent summary folders. You must manually remove such summary folders first. You delete summary folders at the Summaries tab in the Workarea (for more information, see [Chapter 14, "How to delete summary folders"](#)).

Import PL/SQL Functions dialog

Use this dialog to select the PL/SQL function that you want to import into the End User Layer.

For more information, see:

["Why do you need PL/SQL functions?"](#)

The functions listed in this dialog have been defined in the database using SQL commands. For more information about defining PL/SQL functions in the database, see the *PL/SQL User's Guide and Reference*.

Select functions to import

Use this list to choose one or more functions that you want to import from the database.

You can select more than one function by pressing the Ctrl key and clicking another function.

OK

Use this button to import the functions selected and display to the PL/SQL Functions dialog.

Import Wizard: Step 1 dialog

Use this dialog to choose which EUL export files to import. For example, you might want to import a business area definition stored in a file called sales.eex.

For more information, see:

["About copying EULs and EUL objects by exporting and importing"](#)

["How to import EUL objects from a file using the Import Wizard"](#)

Add the files you would like to import

This field displays the list of files that you have selected for import.

Add

Use this button to display the Open File dialog, where you select the export file (.EEX) that you want to import.

When you have selected one or more files to import, the files appear in the **Add the files you would like to import** field.

Delete

Use this button to remove a highlighted export file from the list of files that you want to import.

Import Wizard: Step 2 dialog

Use this dialog to choose how to treat objects that have the same name or identifier, common to the EUL that you exported the objects from and the EUL that you are importing the objects into.

For more information, see:

["About copying EULs and EUL objects by exporting and importing"](#)

["How to import EUL objects from a file using the Import Wizard"](#)

If two objects match then what action should occur?

- **Rename the imported object**

Use this radio button to rename imported objects to differentiate them from existing objects in the current EUL.

For example, you might want to import a folder named Sales into the current EUL, even though the current EUL already contains a folder named Sales. Selecting this option will change the name of the imported folder to Sales1. The EUL will contain a folder called Sales, and a folder called Sales1.

- **Rename the existing object**

Use this radio button to rename existing objects in the current EUL to differentiate them from imported objects.

For example, you might want to import a folder named Sales into the current EUL, even though the current EUL already contains a folder named Sales. Selecting this option will change the name of the existing folder to Sales1. The EUL will contain the existing folder renamed to Sales1, and the imported folder named Sales.

- **Do not import the matching object**

Use this radio button to not import objects that match existing objects in the current EUL.

For example, you might want to import a folder named Sales into the current EUL, even though the current EUL already contains a folder named Sales. Selecting this option will not import the folder Sales. The EUL will contain only the existing folder called Sales.

- **Refresh the object**

Use this radio button to refresh any objects that match existing objects in the current EUL.

For example, you might want to import a folder named Sales into the current EUL, even though the current EUL already contains a folder named Sales. Selecting this option will update the existing folder Sales. The EUL will contain an updated folder named Sales.

When you use the **Refresh the object** radio button, it also activates the **Preserve display related properties** check box.

Preserve display related properties

This check box is activated when you select the **Refresh the object** radio button.

Select this check box to preserve the following workbook display properties:

- heading
- format mask
- alignment
- word wrap
- display case
- replace NULL with
- default position

How you would like objects to be matched up?

Discoverer can use one of the following methods for determining, during an import, whether an object from one EUL is the same as an object in another EUL.

- **By Identifier**

Use this radio button to match the same objects from different EULs by using identifiers. When an object from one EUL is the same as an object from another EUL, both objects share the same identifier.

Note: It is recommended that you use the **By Identifier** radio button to make sure that Discoverer correctly matches the same objects from different EULs, and not use the **By Display Name** radio button.

- **By Display Name**

Use this radio button to match the same objects from different EULs by using object display names.

Note: It is recommended that you do not use the **By Display Name** radio button, but use the **By Identifier** radio button instead. This option is included here only for compatibility with previous versions of Discoverer.

Should the current user take ownership of imported workbooks?

- **Always take ownership of imported workbooks**

Use this radio button if you want the current user to own any imported workbooks.

- **Only take ownership if original owner cannot be found**

Use this radio button if you want the owner of an imported workbook to be the same database user as the original owner of that workbook. If the database does not contain a user with the same name as the original owner of a particular workbook, the current user will be the owner of that imported workbook.

Import Wizard: Step 3 dialog,

Use this dialog to start the import process and monitor its status as Discoverer processes each EUL object.

When you click the Start button, the status bar at the top of the page shows the percentage of the import that has completed.

For more information, see:

["About copying EULs and EUL objects by exporting and importing"](#)

["How to import EUL objects from a file using the Import Wizard"](#)

Start

Use this button to start the import process.

Log

Use this window to monitor messages as they are displayed. Two types of message are displayed:

- information messages providing information about imported objects
- warning messages, providing warnings about potential problems

Save log...

Use this button to specify the import log file name and location using the Save As dialog. The log file will have .txt as the suffix.

Hint: It is a good idea to give the log file a similar name to that of the export file that you are importing. A descriptive name makes it easier to locate the file later on.

Clear Log

Use this button to clear the messages from the **Log** field.

Cancel

Use this button to abort the import. You might want to abort the import if there are warning messages in the **Log** field.

When you abort an import, everything that has already been imported is rolled back.

Finish

Use this button after a successful import to commit the import transactions to the database.

Notes

- Note that you only import the definition of the EUL, the business area, or the object being imported. You are not importing the database containing the EUL tables, or the EUL tables themselves. Nor are you importing the database objects referenced by the EUL objects. When you import a business area or object into a database, the following conditions must apply before Discoverer end users can view the data referenced by the imported business area or object:
 - the database tables referenced by the imported business area or object must exist in the database
 - database users must have sufficient privileges to access the database, the EUL tables, and the database objects, that the imported business area or object reference (for more information, see "[Controlling access to information](#)" and "[What are the data access prerequisites?](#)")

Install/Uninstall Tutorial Wizard: Step 1 dialog

Use this dialog to confirm the name of the EUL when you are installing or removing the tutorial business area, data and tables.

If the EUL shown in this dialog is not the current EUL, click Cancel, close the EUL Manager dialog, and reconnect to the correct EUL.

For more information, see:

["EUL Manager dialog"](#)

Oracle Discoverer Administrator Tutorial

Install Tutorial Wizard Step 1

Use the Install Tutorial Wizard to help you install the tutorial tables, data, and other necessary files.

You can only install the tutorial in the current EUL.

EUL

This field displays the name of the EUL where the tutorial information will be installed.

Uninstall Tutorial Wizard Step 1

Use the Uninstall Tutorial Wizard to uninstall the tutorial data and tables from the current EUL.

Note: When you uninstall the tutorial:

- the tutorial data and tables are removed from the database
- the tutorial business area is removed from the current EUL
- other tutorial installations will no longer be able to access the tutorial data
- the VIDEO5 database user is not removed from the database.

EUL

This field displays the name of the EUL from where the tutorial information will be uninstalled.

Install/Uninstall Tutorial Wizard: Step 2 dialog

Use this dialog to confirm the tutorial user's password when you are installing or removing the tutorial business area, data and tables.

For more information, see:

["EUL Manager dialog"](#)

Oracle Discoverer Administrator Tutorial

Install Tutorial Wizard Step 2

Use this dialog to specify a password for the new VIDEO5 database user that is required to install the tutorial.

User

This field displays the name of the tutorial database user (VIDEO5) and is read-only.

Password

Use this field to enter the password for the VIDEO5 database user. If this is the first time the tutorial has been installed in the current database, you create the password by entering it in this field.

Confirm password

Use this field to re-enter the password you entered in the **Password** field to confirm the VIDEO5 database user password. If the tutorial was previously installed in any EUL in the current database, you will not need to confirm this password.

Finish

Use this button to install the tutorial in the current EUL.

Uninstall Tutorial Wizard Step 2

You must know the VIDEO5 database user password to uninstall the tutorial.

Note: When you uninstall the tutorial:

- the tutorial data and tables are removed from the database
- the tutorial business area is removed from the current EUL

- other tutorial installations will no longer be able to access the tutorial data
- the VIDEO5 database user is not removed from the database.

User

This read-only field displays the name of the tutorial database user (VIDEO5).

Password

Use this field to enter the password for the VIDEO5 database user.

Finish

Use this button to uninstall the tutorial from the current EUL.

Notes

- If you do not know the VIDEO5 database user password, ask the DBA.

Install Tutorial Wizard: Step 3 dialog

Use this dialog to select the default and temporary tablespace for the VIDEO5 database user.

For more information, see:

["EUL Manager dialog"](#)

Oracle Discoverer Administrator Tutorial

Default Tablespace

Use this field to select the database tablespace in which to store the VIDEO5 data. The tablespace you select must have at least 10 MB free.

For more information about EUL space requirements and storage parameters, see [Chapter 3, "What are the space requirements and storage parameters for a typical EUL?"](#).

For a default configuration, you typically choose the USR tablespace here.

- **Tablespace**
Lists the available tablespaces in the database.
- **MB free**
Displays the amount of space available in the tablespace.
- **Auto Ext.**
Indicates whether the Auto Extend database feature is On or Off for the tablespace in the database. When the Auto Extend feature is On, the tablespace will automatically increase in size when necessary.

Temporary Tablespace

Use this field to select the database tablespace where temporary data is stored for the VIDEO5 database user. For a default configuration, you typically choose TEMP here.

Item Class Wizard dialog

Use this dialog to enter a name and description for a new item class.

This dialog is also displayed as:

Item Class Wizard: Step 3

Item Class Wizard: Step 5

Item Class Wizard: Step 6

Edit Item Class: General tab

For more information, see:

["Maintaining items and item classes"](#)

Item class name

Use this field to enter a name for the new item class. Discoverer Administrator enters a default name for you that you can use. This name is used to identify the item class in other dialogs.

Item class description

(optional) Use this field to enter a brief description for the new item class.

Item Class Wizard: Advanced options for list of values dialog

Use this dialog to change advanced list of value (LOV) options for an item class. The settings made here affect how Discoverer Plus users select and display LOV options.

This dialog is also displayed as:

Item Class Wizard: Step 4

Item Class Wizard: Step 5

Edit Item Class: Options tab

For more information, see:

["Maintaining items and item classes"](#)

Retrieve values in groups of

Use this spin box to specify the maximum number of rows to display to an end user (for each array fetch of data from the database), when a list of values is expanded in Discoverer Plus.

Discoverer end users see the results of each database array fetch as a block of data that they can scroll up and down. End users can also easily display the next block of data (for more information, see the *Oracle Application Server Discoverer Plus User's Guide*).

This setting is useful in Discoverer where a LOV might contain many rows, as it removes the risk of having to wait to retrieve all the values from the database at once. Discoverer displays the LOV values in blocks of a specific number of rows.

Note: The value set here is used as a default when the **Require user to always search for values** check box is cleared (for more information, see the ["Require user to always search for values"](#) item below).

Note: In Discoverer Plus, the server will always fetch from the database, the number of rows specified in the **Retrieve values in groups of** field no matter how large the number is. However, the maximum number of values that can be fetched by the client from the server is 100.

This means that if the Discoverer manager sets the fetch size to be 1000, (more than the 100 maximum above), in Discoverer Plus the rows are always fetched by the client in groups of 100. If the Discoverer manager sets the fetch size to be 50, (less than the 100 max), in Discoverer Plus the rows are always fetched in groups of 50.

Sort the values and remove duplicates

Select this check box to hide duplicate values and alphabetically sort the display order of the list of values (for an item class) in Discoverer.

Clear this check box to display duplicate values and display rows in the same order as the values stored in the database.

This option enables you to decide whether LOV statements should automatically add the DISTINCT and ORDER BY clauses. If you know that your data is already distinct and ordered (or if it doesn't matter if your data is returned this way) then you can choose to turn this setting off.

Note: The time taken to display large lists of values depends upon how long it takes to complete a search of the database tables. Clearing this check box can improve the time taken to display large lists of values.

Show values in "Select Items" page of Worksheet Wizard

Select this check box to display LOV items in the Select Items dialog of the Worksheet Wizard (the item navigator) in Discoverer Plus.

Clear this check box not to display LOV items in the Select Items dialog of the Worksheet Wizard (the item navigator) in Discoverer Plus.

Note: In the Item Navigator, the LOV does not use the array fetch size (as specified in the ["Retrieve values in groups of"](#) spin box). In this specific instance only, Discoverer will fetch all the values first before they are displayed. If you have millions of rows, this could potentially take a long time and you would want to have this option selected.

Require user to always search for values

Sometimes, for performance reasons you might want to force end users to query a subset of the LOV. To do this you use this check box.

Select this check box when you want Discoverer to display a **Search Criteria** field that forces end users to enter search criteria to reduce the list of values to a subset of the whole list.

Clear this check box when you want Discoverer to display the number of rows specified in the **Retrieve values in groups of** spin box (for more information, see ["Retrieve values in groups of"](#)).

Cache list of values during each connection

Select this check box to cache the LOV (during the current session) once it has been displayed for the first time. Use a cache when your data is static during your session. This is the recommended setting.

Clear this check box to fetch LOVs from the database each time. This option is most useful when the data is extremely dynamic and you wish end users to always see the very latest (up-to-the-second) list of values.

Item Class Wizard: Choose Attributes dialog

Use this dialog to choose the type of item class that you want to create. For example, to choose to create a list of values (LOV) that Discoverer end users can use when choosing parameter values to restrict workbooks.

This dialog is also displayed as:

Item Class Wizard dialog

For more information, see:

["Maintaining items and item classes"](#)

Select item class attributes:

List of values

Use this check box to create a set of the unique values that exist for an item. The values correspond to those found in a database column.

Alternative sort

Use this check box to sort items by criteria you define. Items are normally sorted in ascending or descending order according to ASCII sort values. Sometimes, however, you might want to sort data objects in an alternative order. For example, you might want to sort sales regions North, South, East, and West in that order, so the alternate sort order would be North=1, South=2, East=3 and West=4.

Drill to detail

Use this check box to allow users to drill from summary information into more specific information. These items do not need to be in the same folder.

Notes

- To create an alternative sort order, you must first add a column to the database table containing the column to be sorted.
- The item to be sorted with an alternate sequence must be contained within the same folder as the item providing the list of values for the item class. An item class containing an alternate sort sequence must also contain a list of values.

Item Class Wizard: Select Item dialog (if you chose alternative sort)

Use this dialog to select the item on which to base the alternative sort.

This dialog is also displayed as:

Item Class Wizard: Step 3

Edit Item Class: Alternative Sort tab

For more information, see:

["Maintaining items and item classes"](#)

Select the item containing the alternative sort sequence:

Folder

Use this field to select an item on which to base the alternative sort.

Note: The alternative sort item must be in the same folder as the list of values.

Item Class Wizard: Select Item dialog (on which to base LOV)

Use this dialog to select the item on which to base the list of values.

For more information, see:

["Maintaining items and item classes"](#)

This dialog is also displayed as:

Item Class Wizard: Step 2

Edit Item Class: List of values tab

Select the item that generates list of values:

Business area:

Use this field to select an item on which to base the list of values. You can choose from any business area in the EUL.

Notes

- Selecting a business area displays its folders.
- Click the plus (+) symbol to expand folders and display the items contained in them.

Item Class Wizard dialog (select items that use this item class)

Use this dialog to specify which items in the business area will use the new item class. For example, if you create a list of values on Month (January, February, March etc.), you might want to specify all month items here. When Discoverer end users query on month, they can choose from January, February, March etc.

This dialog is also displayed as:

Item Class Wizard: Step 2

Item Class Wizard: Step 3

Item Class Wizard: Step 4

Edit Item Class: Select Items tab

For more information, see:

["Maintaining items and item classes"](#)

Select the items that use this item class.

Available items:

Use this drop down list to select a business area.

Use the field to select the items to use this item class from the expandable list below.

To select items, move them from the **Available items** list to the **Selected items** list.

You can select more than one item by pressing the Ctrl key and clicking another item.

Selected items

This field displays the items that will use the item class.

Notes

- If you do not select the items using the item class, you will need to apply the item class to specific items later.

Item Properties dialog

Use this dialog to configure item properties. For example, to change the name or formula of an item.

For more information, see:

["Maintaining items and item classes"](#)

["How to edit item properties"](#)

The Item Properties dialog contains two tabs:

- **"General"** - use this tab to configure the item. For example, to change the item.
- **"Dependents"** - use this tab to look at other items dependent on this item. For example, summaries that use the item.

General

Name

Use this field to change the name of the item. By default, the name is derived from the database column on which the item is based.

Description

Use this field to change the description of the item. The contents of this field are displayed on the description line of Discoverer Plus's Query Wizard.

Data type

This read-only field displays the data type of the item, supplied by the column definition in the data dictionary. This field is not editable because it identifies the data type directly from the dictionary.

Formula

Use this field to display the ["Edit Calculation dialog"](#) where you change the item's formula. A formula displayed in this field means the item is a derived item. A derived item is created, by applying a calculation to an existing item. For example, a derived item can be the calculation for percentage profit. Deriving items in the business area means users do not have to know complex formulas themselves in order to calculate analysis results. A field containing a column name indicates that it is not a derived item and that its data comes directly from the database column (in this case, the field is not editable).

Database column

This field displays the derivation of the item. It consists of the owner's user name, the table name and column name. If this field is blank, the column has been created from a formula.

Visible to User

Use this field to specify whether the item is visible to Discoverer end users:

- choose Yes to display the item in Discoverer Plus.
- choose No to hide the item in Discoverer Plus

Note: You typically use the No option to hide items that must be present in the folder to be used in calculations, but are of no value or are inappropriate to display to the end user. Other hidden items might contain data such as primary and foreign keys or sensitive data such as salary information.

Item Class

Use this field to change the item class to which the item belongs. Use the list to select an alternative item class. This field is active only when the item is an axis item.

Date Hierarchy

Use this field to change the date hierarchy that is applied to the item. A list is available of valid date hierarchies that can be applied to the item. The field is inactive when the item is not a date item.

Default position

Use this field to change where the item is positioned by default on worksheets.

Default aggregate

Use this field to change the aggregate type for the item (if numeric).

Heading

Use this field to change the heading. Discoverer displays the Heading property of each item used in a worksheet. By default, the heading is the item's Name property, which is derived from the database column on which the item is based.

Format mask

Use this field to change the default format mask used to display the item in Discoverer end user workbooks. The syntax uses standard Oracle formats found in the *Server SQL Language Reference Manual*, which is supplied with your Oracle database. By default, a listing shows sample format masks appropriate for the item's data type. You can enter your own format mask if the samples do not list the one you want.

Note: Discoverer Administrator does not currently enable you to use the Euro currency symbol in the format mask. However, you can specify the Euro currency symbol in the format mask using Discoverer Plus. For more information, see the *Oracle Application Server Discoverer Plus User's Guide*.

Alignment

Use this field to change the alignment of data displayed in Discoverer Plus. Select an alignment from the drop down menu. The default selection, General, right aligns numeric data, and left aligns date and text data.

Word Wrap

Use this field to specify whether text data wraps in Discoverer Plus.

Note: Setting this to Yes can impact on performance in Discoverer Plus when accessing large amounts of text data.

Case Storage

Use this field to specify how text items are stored in the database, independent of how they are displayed. The Discoverer end user does not see this information. It enables you to optimize the use or display of this information in end-user workbooks. For example, if the data is already being stored correctly, you do not need to modify the text using the Display case option. Setting this value can improve the user's performance when running queries with conditions. If the data is always stored in uppercase in the database, set the value to uppercase. If the data is stored in lowercase, set the value to lowercase.

Display case

Use this field to change how items are displayed in workbooks.

Default width

Use this field to change the item's default width (i.e. in characters) when displayed in end user reports. This value is only used if Use Default Width is set in Discoverer Plus (under Tools | Options | Table).

Replace NULL with

Use this field to change how Discoverer displays null characters. For example, null = We're out... order now!, null = 0, null = nothing visible, or space.

Content type

Use this field to specify whether the item can be used to launch an external application. Choose FILE if the data item contents require a helper application to run, such as Microsoft Excel. Choose NONE if the data type does not require a helper application.

If the item is a BLOB (i.e. a binary large object), the file extension determines the application (i.e. which .exe executable file) to use to view the item. For example, .DOC uses MS Word, .WAV plays a sound through the currently registered sound player for WAV files. These associations are set up in your computer's operating system.

Note: If the content is an image that is stored in the database, or a drill out image (e.g. a HTML icon indicating a drill out to a Web report), choose NONE (for more information, see [Chapter 8, "About drilling out to other applications"](#)).

Max char fetched

Use this field to specify the maximum amount of characters retrieved in a SQL call to the database. This option is particularly useful for LONG data types. The purpose of limiting the total amount is that sometimes there are hundreds, perhaps thousands of characters in a data element and it would be inefficient or unnecessary to retrieve the entire data element.

Identifier

Use this field to change the unique name that Discoverer uses to identify EUL and workbook objects. When matching objects common to different EULs, Discoverer uses identifiers to locate objects in different EULs that refer to the same business objects.

Warning: It is not advisable to change an identifier as it can affect the relationships between EUL objects.

Note: The primary use for the formula and database columns is for tracking the source of the item's data. For example, if something has changed in the underlying database or data dictionary, this field provides an audit trail identifying the data's original source. It provides information to the Discoverer manager about exactly where the data came from.

Dependents

This read-only tab displays two columns (i.e. Type and Name) that clarify the extent to which other objects (e.g. folders, joins, items, item classes, summary folders, conditions, calculated items) are dependent on the selected item.

Type

This field displays one or more object types (e.g. folders, items) that have a dependency on the selected item.

Name

This field displays the name of each object listed in the Type column.

Items dialog

Use this dialog to select an item to use when you create or edit a condition.

For more information, see:

["What are conditions?"](#)

Discoverer displays this dialog when you choose the **Select Item...** option from the drop down list in the **Value(s)** field of the New/Edit Condition dialog.

Select an item:

Choose an item to display in the **Value(s)** field of the New/Edit Condition dialog.

Use the OK button to display the selected item in the **Value(s)** field.

The item that you select here is used in the current condition statement of this condition.

Join Properties dialog

Use this dialog to configure join properties. For example, to change the name of a join or change its cardinality (i.e. Join relationship property).

The Join Properties dialog contains two tabs:

- ["General"](#) - use this tab to configure the join. For example, to change the join name.
- ["Dependents"](#) - use this tab to look at other items dependent on this join. For example, to look at summary folders that use the join.

Note: You can use the Join Properties dialog to inspect and edit more than one join item at a time. Select a join to view its properties. If you select more than one join and make a change to a property that is common to the selected joins, the changes apply to all selected joins.

Note: Discoverer can improve query performance for end users by removing unwanted joins (also known as join trimming). For more information, see ["What effect do joins have on query results and query performance?"](#).

For more information, see:

["What are joins?"](#)

["How to view or edit joins"](#)

General

Name

Use this field to change the name of the join. By default, Discoverer Administrator will name the join item by combining the master and detail folder names in the form: Master Folder - > Detail Folder.

Description

Use this field to change the description of the join. By default, Discoverer Administrator will describe the join item by combining the master and detail folder names in the form: Master Folder - > Detail Folder.

Master

Use this read-only field to view the folder name at the master end of the join relationship.

Detail

Use this read-only field to view the folder name at the detail end the join relationship.

Formula

Use this field to display the "Edit Join dialog: Items tab", where you specify how the items are joined.

Outer join on

Use this field to specify an outer join on the detail or master folder. This field can display the values None, Master folder or Detail folder.

Use an outer join on the detail folder when you want to return:

- Master rows that have no corresponding detail items, as well as all matching master and detail rows.

Use an outer join on the master folder when you want to return:

- Detail rows that have no corresponding master items, as well as all matching detail and master rows. This construct is rare in real business scenarios. To use this construct, select the Detail item values might not exist in the master folder value in the **Join details** field. For more information, see "Edit Join dialog: Options tab".

Join details

Use this field to specify that detail items always exist in the master folder, or whether detail items might not exist in the master folder.

This field can display the following values:

- Detail item values always exists in master folder
For more information, see the **Detail item values always exist in the master folder (Typical)** radio button in the "Edit Join dialog: Options tab".
- Detail item values might not exist in master folder
For more information, see the **Detail item values might not exist in the master folder** radio button in the "Edit Join dialog: Options tab".

Join relationship

Use this field to specify the type of join relationship (i.e. the cardinality of the join) as follows:

- Use the **One to one (1:1)** join to join two tables that have a one to one relationship. For example, if every department has one (and only one) manager, and every manager can manage one (and only one) department, then you would use a 1:1 join relationship.
- Use the **One to many (1:n)** join to join two tables that have a one to many relationship. For example, if every employee can be in one (and only one) department, and a department can have one, many, or no employees, then you would use a 1:n relationship.

Identifier

This field displays a unique name that Discoverer uses to identify EUL and workbook objects. When matching objects common to different EULs, Discoverer uses identifiers to locate objects in different EULs that refer to the same business object.

Dependents

The Dependents tab displays two columns (i.e. Type and Name) that clarify the extent to which other objects (e.g. folders, joins) are dependent on the selected join.

Type

This column displays one or more object types (e.g. folders, items) that have a dependency on the selected join.

Name

This column displays the name of each object listed in the Type column.

Join Wizard: Step 1 dialog

Use this dialog to create a new join, or to edit an existing join.

This dialog is also displayed as:

- Edit Join dialog: Items tab
- Edit Join dialog

For more information, see:

["What are joins?"](#)

["What are single item joins?"](#)

["How to create joins"](#)

Name

Use this field to enter the name of the join. This name is displayed in the Discoverer Administrator Workarea. Discoverer end users only see this name when two or more joins exist between two folders, and the end user has to choose between them.

Description

Use this field to enter additional information about the join. This description is displayed in the Discoverer Administrator Workarea. Discoverer end users only see this description when two or more joins exist between two folders, and the end user has to choose between them.

Master Items

Use this field to select the item in the master folder that you want to join. Fields are prefixed with the folder name, for example Products.Product Key.

Choose More items to display the "[New Join dialog](#)", where you can select a folder or item from anywhere in the EUL.

Operator

Use this drop down list to select how you want to match the items in the master folder and the detail folder. For example, choose the equals (=) operator to find an exact match between the two items.

List of join operators:

Operator	Equi or Non-equi Join?	Description
=	equi	relates rows that have equivalent values for specified items
< >	non-equi	not equal
<	non-equi	less than
<=	non-equi	less than or equal
>=	non-equi	greater than or equal
>	non-equi	greater than

Note: For more information about non-equi joins, see "[What are non-equi-joins?](#)".

Detail Items

Use this drop down list to select the item in the detail folder that matches the item in the master folder. The detail item folder can be in the same business area as the master folder, or in a different business area.

Choose More items to display the "[New Join dialog](#)", where you can select a folder or item from anywhere in the EUL.

Add

Use this button to add a join item to the join. Here, you can create multi-item joins by selecting another master folder, operator, and detail folder.

Delete

Use this button to remove the currently selected join item from the join.

Join Wizard: Step 2 dialog

Use this dialog to specify whether detail items exist in the master folder and optionally specify an outer join and the join relationship (also known as the cardinality of the join).

This dialog is also displayed as:

- Edit Join dialog: Options tab

For more information, see:

["What are joins?"](#)

["What are single item joins?"](#)

["What effect do joins have on query results and query performance?"](#)

["How to create joins"](#)

Choose the join details

Use this option to specify whether Discoverer can assume that detail item values exist in the master folder for this join. For more information about which radio button to select, see ["Examples of how joins can affect query results from complex folders"](#).

- **Detail item values always exist in the master folder (Typical)**

Use this radio button to display rows for detail items assuming that values in the detail folder always have corresponding values in the master folder (for more information, see ["What effect do joins have on query results and query performance?"](#))

- **Detail item values might not exist in the master folder**

Use this radio button not to display rows for detail items assuming that values in the detail folder do not always have corresponding values in the master folder (for more information, see ["What effect do joins have on query results and query performance?"](#)).

For more information about when to use these settings, see ["Examples of how joins can affect query results from complex folders"](#).

Outer join on detail

Use this check box to create an outer join on the detail table. This returns all master rows that have no corresponding detail items, as well as all matching master and detail rows. For more information, see "[What are outer joins?](#)".

Outer join on master

Use this check box to create an outer join on the master table. This returns all detail rows that have no corresponding master items, as well as all matching detail and master rows. This construct is rare in real business scenarios. To use this construct you must select the **Detail item values might not exist in the master folder** radio button. For more information, see "[What are outer joins?](#)".

One to one join relationship between master and detail

Select this check box to create a one-to-one relationship instead of a one-to-many relationship between the master and detail tables. There is no real master and detail in this case, because each row in the master table can correspond to no more than one row in the detail table.

This setting has no effect on the SQL that Discoverer generates, because SQL does not know about the cardinality of joins. It only affects the fan trap detection (for more information, see "[What are fan traps, and how does Discoverer handle them?](#)").

For more information about join relationships, see "[What are one-to-many joins, one-to-one joins, and many-to-many joins?](#)".

Load Wizard: Step 1 dialog

Use the Load Wizard to choose how you want to open a business area. For example, you might want to:

- create a new business area
- open an existing business area

For more information, see:

["What is the Load Wizard?"](#)

["How to create a business area using the Load Wizard"](#)

What do you want to do?

Create a new business area

Use this button to create a new business area. Discoverer displays the field ["Where do you want to load the metadata from?"](#).

Open an existing business area

Use this button to open an existing business area. Discoverer displays the field ["Select one or more business areas to open"](#).

If you choose **Create a new business area**, Discoverer displays the following options:

Where do you want to load the metadata from?

- **On-line dictionary**

Use this radio button to load tables and views from the Oracle dictionary.

- **Gateway**

Use this radio button to load tables and views from the data source you specify in this text box. Use the drop down list to select from available data sources.

For more information about loading a business area from the gateway, see [Chapter 4, "How to create a business area using the Load Wizard"](#).

If you choose **Open an existing business area**, Discoverer displays the following options:

Select one or more business areas to open

Use this field to choose one or more business areas to open. Click the appropriate check boxes or use the Select All and Clear All buttons to help you select the business areas.

Notes

- Discoverer displays the Load Wizard automatically when you connect to an EUL. To display the Load Wizard when you are already connected to an EUL, choose File | New.
- The Gateway option is only available when you are using Oracle Designer or have a registered EUL Gateway and all its tables are visible (for more information about setting up an EUL Gateway, see [Chapter 3, "What is the EUL Gateway?"](#)). If you are using Oracle Designer, the drop down list displays the Oracle Designer work areas to which you have access. Note that if you are using a version of Oracle Designer prior to Oracle Designer 6i, the drop down list simply displays 'Oracle Designer repository'.
- If you are loading data from Oracle Designer 6i (i.e. where versioning is switched on), create a work area containing the set of object versions you want to load. We recommend that the work area rules are based on a configuration which defines a coherent release set of objects. It is important to make sure that no foreign key definitions within the work area reference tables/views outside the work area. To validate the work area is complete, use the Oracle Designer 'List External Reference' utility.
- If versioning (e.g. with Oracle Designer 6i) is not switched on, there will only be one default work area called the 'Global Shared Work area' containing all the objects, and this must be used.

Load Wizard: Step 2 dialog

Use this dialog to define which objects you want to load into the new business area. Your choices depend on where you choose to get your metadata.

For more information, see:

["What is the Load Wizard?"](#)

["How to create a business area using the Load Wizard"](#)

Select a database link

Use this drop down list to specify which database to use as the data source.

Note: A database link sets up a connection from one database to another, and is created in the database. You can set up multiple database links in a database. If you are unsure, ask your Database Administrator for more information.

Select the users whose tables you want to load [for loading meta data from an online dictionary]

Use this field to choose one or more users whose tables can be loaded from the data source named in the **Select a Database Link** field. Click the appropriate check boxes or use the Select All and Clear All buttons to help you select the users.

Select the schemas you want to load [for loading meta data from a gateway]

Use this field to choose one or more schemas (i.e. object owners) whose objects can be loaded from the database link named in the **Select a Database Link** field. Click the appropriate check boxes or use the Select All and Clear All buttons to help you select the schemas.

Load user objects that match

Use this field to enter Oracle wildcard characters to find objects to load. This is helpful if you do not remember the names of the tables you want to load. By default all objects owned by the userid you selected will be loaded (i.e. when the percent (%) symbol is displayed in this field).

For further information about wildcards see ["Loading from the online dictionary"](#)

Load Wizard: Step 3 dialog

Use this dialog to select the schema objects that you want to load into the new business area.

For more information, see:

["What is the Load Wizard?"](#)

["How to create a business area using the Load Wizard"](#)

Available

This field displays all schema objects (i.e. tables and views) available for inclusion in the new business area. Select one or more schema objects from the **Available** field and move them to the **Selected** field.

Selected

This field displays all tables and views that you have selected to be included in the new business area. Each table and view that you select will be a folder in the new business area.

Notes

- You can select more than one schema object by pressing the Ctrl key and clicking another schema object.
- The selections made in the Load Wizard: Step 2 dialog determined the objects that are now displayed in the **Available** field in the Load Wizard: Step 3 dialog. If you want to change any of those selections (i.e. the database link, user IDs, or tables you specified, if you used the online dictionary options), click Back to return to the Load Wizard: Step 2 dialog.

Load Wizard: Step 4 dialog

Use this dialog to configure the joins and additional objects that Discoverer generates when data is loaded into the new business area.

For more information, see:

["What is the Load Wizard?"](#)

["How to create a business area using the Load Wizard"](#)

Do you want to create joins?

Yes, create joins from:

Use this check box to create joins on items in the business area.

- **Primary/foreign key constraints**

Use this radio button to create joins on primary and foreign keys. For example, if Regions contain many Stores, the primary key Region.Region Name might be joined to the foreign key Stores.Region Name.

It is recommended that you use this option:

- when primary and foreign key constraints are defined in the database

You use this option because:

- it saves you having to create the joins manually
- Discoverer will always create joins that are correct (i.e. the master and detail relationship is specified the right way round)

- **Matching column names**

Use this radio button to create joins on matching column names in the database tables. You use this option when no primary and foreign key constraints are defined, for example, if you are using a non-Oracle database.

If you choose this option, Discoverer checks every column name of every object being loaded against every other column name. As the number of columns that are loaded increases, the amount of processing required also increases. A side effect of doing this is that the joins created must be checked after the load to make sure they are valid. The master-detail folder relationship must be verified as being the correct way round, and the join condition must be verified as being valid (i.e. not created accidentally by two different columns using the same name.)

What additional objects do you want to generate?

Summaries based on folders that are created

Use this check box to use automated summary management (ASM) to create summary folders after the load process, based on folders that Discoverer creates.

ASM attempts to create a set of suitable summary folders after analyzing the table structure. Selecting this option might slightly increase duration of the business area load, but should give end users improved query performance.

Note: Do not choose this option if you are going to run ASM, or if your database space is low.

Date hierarchies:

Use this check box to automatically create date hierarchies for date items.

Choose a hierarchy from the drop down list of default date hierarchy formats. The date hierarchy is applied to all date columns in the business area. Creating a date hierarchy enables end users to drill up/down through date items. For example, from years to quarters or from months to days.

Automatically generating date hierarchies inserts additional (i.e. calculated) items into the folder. An extra item is created for every date item in each node in the date hierarchy. For example a date hierarchy containing year | quarter | month | day applied to a table with three date columns, generates an additional 12 items in the folder. For more information, see [Chapter 12, "Creating and maintaining hierarchies"](#).

Default aggregate on data points

Use this check box to specify a default aggregate for numeric items.

Choose an aggregate from the drop down list. The default aggregate is SUM.

List of values for items of type:

Use this check box to generate lists of values based on the types you select. This option automatically creates lists of values for each axis item of each type specified, except character items longer than 40 characters. The values are derived from the values in the database column.

Notes

- Items are loaded as data points if they are DECIMALS (i.e. a NUMBER data type) and have a non-zero precision. Integer numbers, all keys, and all other data types are loaded as axis items, with a default position of Top.
 - Axis items are usually displayed on one of the axes of a worksheet. For example, the term Monthly Profit might be an axis item in a worksheet.

The alternative term for an axis item is a dimension.
- Data points are usually displayed in the body of a worksheet. For example, an amount in dollars (e.g. \$2,000) might be a data point item representing Monthly Profit in a worksheet.

The alternative term for a data point is a measure.
- In Discoverer Plus, whether an item is an axis item or data point determines the items' default placement on cross tab worksheets, as follows:
 - Because data points usually include the numbers that users want to analyze, they are displayed by default with aggregate functions in the center of cross tabular reports.
 - Axis items can have lists of values but data points cannot. Axis items appear on the page, top, or side of cross tabular worksheets by default.
 - The default position of an axis item or data point item in a worksheet is determined by the Discoverer manager. However, Discoverer Plus users can alter the position of axis items and datapoint items in a worksheet.
- Lists of values are derived by querying the database when Discoverer users click the plus (+) symbol next to the item. Lists are dynamic and change if the values in the database change. When the plus (+) symbol is clicked, Discoverer caches the values on the client machine for performance reasons, unless the **Cache list of values during each connection** check box is cleared, when creating or editing an item class in the following dialogs:
 - Item Class Wizard: Step 4/5 dialog
 - Edit Item Class dialog: Options tab

If you select the **Cache list of values during each connection** check box and you want to display new values in a list, you must reconnect (for more information about this setting, see "[Item Class Wizard: Advanced options for list of values dialog](#)").

- Avoid creating lists of values on items that will contain many values (e.g. decimals).

Load Wizard: Step 5 dialog

Use this dialog to enter a name and description for the business area and to configure how data is loaded into the business area.

For more information, see:

["What is the Load Wizard?"](#)

["How to create a business area using the Load Wizard"](#)

What do you want to name this business area?

Use this field to enter a name for your new business area. Use a short name that reflects the business function of the business area. For example, Web Usage Analysis.

What Description do you want for this business area?

Use this field to enter a description for your new business area. Use this field to provide additional information about the business area, such as who created it, the intended audience, or more specific details about its scope.

How do you want to generate object names?

Replace all underscores with spaces

Use this check box to replaces underscores with spaces. For example, Region_Name is converted to Region Name.

Remove all column prefixes

Use this check box to removes prefix characters that are common to all columns. For example, if a table name is EMP and its column names are EMP_Number, EMP_Name, and EMP_Address, the corresponding names in the business area become Number, Name, and Address.

Capitalize:

Use this check box to capitalize (then choose an option from the drop down list) as follows:

- The first letter of every word

Choose this option to capitalize the first letter of folder and item names. For example, REGION_NAME is converted to Region_Name. This is useful because table names are usually in uppercase text in the database.

- The initial letter

Choose this option to capitalize the first letter of the first word of folder and item names. For example, REGION_NAME is converted to Region_name.

Which objects do you want to sort?

Sort Folders

Use this check box to sort folders alphabetically within a business area.

Sort Items

Use this check box to sort items alphabetically within a folder.

For information about using the command line interface to sort folders and items during a business area load, see [Chapter 21, "/load"](#).

For information about sorting folders and items in a business area, see:

- ["How to sort folders in a business area"](#)
- ["How to sort items in a folder"](#)

Manage Folders dialog: By Business Area tab

Use this tab to assign multiple folders to a single business area. For example, to add multiple folders to a new business area.

For more information, see:

["What are folders?"](#)

Business area

Use this drop down list to select a business area to which you want to assign one or more folders.

Available folders

This list displays available folders not currently assigned to the business area selected. Orphaned folders are also shown in the list.

To assign folders to the current business area, move the folders from the **Available folders** list to the **Current folders** list.

Current folders

This list displays folders currently assigned to the business area.

To remove a folder from the current business area, move the folder from the **Current folders** list to the **Available folders** list.

Notes

- You can select more than one folder at a time by holding down the Ctrl key and clicking another folder.

Manage Folders dialog: By Folder tab

Use this tab to assign single folders to multiple business areas. For example, to assign a new folder to multiple business areas.

For more information, see:

["What are folders?"](#)

Folder

Use this drop down list to select the folder that you want to assign.

If you select a folder that is not assigned to any business area, the folder is an orphaned folder.

Available business areas

This list displays all available business areas to which you can assign the current folder.

To assign the current folder to a business area, move the business area from the **Available business areas** list to the **Current business areas** list.

Current business areas

This list displays business areas to which the current folder is assigned.

To remove a business area from the current folder, move the business area from the **Current business areas** list to the **Available business areas** list.

Notes

- You can select more than one business area at a time by holding down the Ctrl key and clicking another business area.

Manage Folders dialog: Orphaned Folders tab

Use this tab to view or delete orphaned folders from the current EUL. Orphaned folders are folders that are not owned by any business areas.

For more information, see:

["What are folders?"](#)

["How to remove an orphaned folder from the EUL"](#)

Orphaned Folders

This list displays all orphaned folders in the current EUL.

Delete

Use this button to delete a highlighted orphaned folder from the current EUL.

Notes

- You can select more than one orphaned folder at a time by holding down the Ctrl key and clicking another orphaned folder.

Manage Scheduled Workbooks dialog

Use this dialog to monitor and maintain workbooks that Discoverer end users have scheduled. For example, you might want to check on the progress of a workbook being processed, or to remove a scheduled workbook that was created by a Discoverer end user but is no longer required.

For more information, see:

["What are workbooks and scheduled workbooks?"](#)

Show workbooks for

Use this drop down list to select the user or role whose scheduled workbooks you want to view or edit.

Scheduled workbooks

This field displays a list of the scheduled workbooks that are owned by the selected user or role. The workbooks listed are either scheduled to run or have already run and are ready to use. The list contains the following fields:

- User
This column displays the name of the Discoverer user who scheduled the workbook.
- Name
This column displays the name of the scheduled workbook.
- Status
This column displays the status of the workbook. Refer to the table below for details about the status of a workbook.

Status	Description:
Scheduled	This workbook has been scheduled and will run at the specified date and time.
Running Query	This workbook is currently running. No results are available.
Could not schedule	This workbook was not successfully submitted to the processing job queue. It is a good idea to let the Discoverer end user know so they can attempt to reschedule this workbook.

Status	Description:
Error while running query	There was an error when this workbook was run. No results were returned from the database. This could be due to a problem in the PL/SQL generation or execution. An Oracle database error is generated here and can be accessed by the database administrator. If part of a scheduled workbook fails (i.e. one sheet out of the workbook), the entire scheduled workbook run fails.
Report deleted by Administrator	The Discoverer manager has set the scheduled workbook for deletion. Report runs with this status are deleted when the user next disconnects from the EUL.
EUL has changed, reschedule report	A change has occurred in the EUL which affects the scheduled workbook. For example, if a folder has been deleted. The user can resubmit the scheduled workbook.
Number of Rows Limit exceeded	The results of this scheduled workbook return more rows than this user is allowed to retrieve. The results have been deleted. Use the " Privileges dialog: Query Governor tab " to change this limit.
Report Expired	The expiration date has passed. This workbook is no longer available. Reports with this status are deleted when the user disconnects from the EUL.
Report Ready	This workbook successfully queried the database and users can view the results.

- **Date**
This column displays the date on which the workbook is next scheduled to run (if the workbook's status is Scheduled) or when the workbook was last run (if the workbook's status is Report Ready).
- **Time**
This column displays the time at which the workbook is next scheduled to run (if the status is Scheduled) or was last run (if the status is Report Ready).
- **Run time**
This column displays the length of time this workbook took to run.

Description

This read-only field displays any additional information about the selected workbook.

Edit

Use this button to display the "[Schedule Workbook dialog: General tab](#)", where you change the settings for the selected workbook. This option is only available for workbooks that have not yet been processed.

View Error

Use this button to display a description of why a selected workbook could not be run successfully. This option is only available for workbooks that could not be scheduled due to an error.

Unschedule/Delete

Use this button to un-schedule the workbook and remove the workbook from the list in the **Scheduled workbooks** field. Any workbooks resulting from previous runs of this workbook are removed.

Refresh

Use this button to check the database for any changes to the schedule since you opened this dialog.

Notes

- You can re-sort the **Scheduled Workbooks** list by clicking the column you want to sort by. For example, if you want the list sorted by date, click the Date column header.

Name Summary Folder dialog

Use this dialog to enter a name and description for a summary folder. For summary folders based on materialized views or summary tables, you can also configure when to build the summary folder. For example, you might want to build a summary folder immediately.

This dialog is also displayed as:

Summary Wizard: Step 5

Summary Wizard: Step 6

Summary Wizard: Step 7

Edit Summary dialog: General tab

For more information, see:

["About folders and summary folders in Discoverer"](#)

["What is manual summary folder creation?"](#)

For summary folders based on summary tables or materialized views

Here you can name a summary folder and schedule its build times.

Provide a name and description for this summary folder

Name

Use this field to enter a name for the summary folder. Discoverer Administrator creates a default name for you that you can use.

Description

(optional) Use this field to enter additional information about the summary folder.

When would you like to build this summary folder?

- **Build immediately**

Use this radio button if you have smaller summary folders, or if you want to build the summary folder immediately.

- **Build at (Date, Time)**

Use this radio button if you have larger summary folders that are best built at off-peak hours. Enter the time and date you want to build the summary folder.

For summary folders based on external summary tables

Here you can name the summary folder and provide a description.

Provide a name and description for this summary folder

Name

Use this field to enter a name for the summary folder. Discoverer Administrator creates a default name for you that you can use.

Description

(optional) Use this field to enter additional information about the summary folder.

New Condition dialog (Advanced)

Use this dialog to create a new condition for use in the business area.

For more information, see:

["What are conditions?"](#)

["What are the different types of condition?"](#)

["How to create simple conditions"](#)

["How to create advanced conditions"](#)

Advanced conditions contain multiple criteria. For example:

- to restrict Discoverer end users to data for the year 2001 in the first quarter, you might create a mandatory condition here: Year = 2001 AND Quarter = Q1. When they access workbooks, Discoverer end users will always see data for the year 2001 in the first quarter.
- to enable Discoverer end users to easily look at data for different quarters in the year 2001, you might create the optional conditions:
 - Year = 2001 AND Quarter = Q1
 - Year = 2001 AND Quarter = Q2
 - Year = 2001 AND Quarter = Q3
 - Year = 2001 AND Quarter = Q4

When they access workbooks, Discoverer end users will be able to focus on data for particular quarters in the year 2001 by applying these conditions.

Name

Use this field to enter a name for the new condition.

Generate name automatically

Select this check box for Discoverer to create a name for you.

Clear this check box to enable the **Name** field and enter a condition name.

Description

Use this field to enter additional information about the condition. This description is displayed when you select this condition in the Workarea, and in Discoverer Plus. Make your description useful to both you and your users.

Location

This field displays the name for folder that will store the condition. This is the location you selected when you chose Insert | Condition.

Type

Use this drop down list to choose the condition type:

- **Mandatory**
Mandatory conditions are always applied to a worksheet that contains one or more items from the folder that contains the condition. Discoverer Plus users are not notified of mandatory conditions and can not turn them off.
- **Optional**
Optional conditions can be turned on or off as required by Discoverer Plus users.

Formula

Use this field to specify the filter criterion that you want to use.

- **Item**
Use this drop down list to choose what item you want to filter the data on. For example, choose Year here if you want to display data for a particular year.
- **Condition**
Use this drop down list to choose how to match data against the item. For example, choose the '>' symbol (greater than) here to filter data where the item value is greater than a particular number.
- **Value(s)**
Use this field to define what data you want to match against. For example, enter 2001 here to look only at data for the year 2001.
If you created a list of values for the item, these items appear in the drop down list.
You can also click the drop down list and match against the following:
 - Click **Select Multiple Values** to display the "Values dialog".
You select one or more values to use in the condition.
 - Click **Create Calculation** to display the "New Item dialog".

You create a calculated item to use in the condition.

- Use the **Select Item** option to display the "[Items dialog](#)".

You select an item to use in the condition.

Match case

Use this check box to match upper and lower case text data exactly. When selected, the match value 'New York' would not return data for 'new york'.

Advanced

Use this button to add one or more new criteria lines to the condition. Use this button to display the Add, Delete, And, Or and Not buttons.

Add

Use this button to insert a new criterion line to the condition. By default, the new item is grouped with a logical AND, which means that data must match all criteria contained within the AND group.

Delete

Use this button to remove the currently selected filter criterion from the condition.

And

Use this button to insert a new criterion line to the condition. The new item is grouped with a logical AND, which means that data must match all criteria contained within the AND group.

Or

Use this button to insert a new criterion line to the condition. The new item is grouped with a logical OR, which means that data much match at least one of the criteria contained within the OR group.

Not

Use this button to invert the condition for the currently selected group. The item is grouped with a logical NOT AND or NOT OR, which means that data must *not* match the criteria contained with the NOT group.

Notes

- The buttons Delete, And, and Or are only available if you have selected a criteria in the Formula display.

New Condition dialog (select an item or folder for)

Use this dialog to choose where you want to store the new condition.

For more information, see:

["What are conditions?"](#)

["What are the different types of condition?"](#)

["How to create simple conditions"](#)

["How to create advanced conditions"](#)

For example, if you do not select a folder before choosing Insert | Condition, you select a folder here.

This dialog is also displayed as:

New Condition dialog

Business Area

Use this drop down list to select a business area. Then, choose the folder in which to store the condition from the expandable item list below.

New/Edit Condition dialog

Use this dialog to create a new condition, or edit a condition in the business area.

This dialog is also displayed as:

New Condition dialog

Edit Condition dialog

For more information, see:

["What are conditions?"](#)

["What are the different types of condition?"](#)

["How to create simple conditions"](#)

["How to create advanced conditions"](#)

Simple conditions typically contain one filter criterion. For example:

- to restrict Discoverer end users to data for the year 2001, you might create a mandatory condition here: Year = 2001. When they access workbooks, Discoverer end users will always see data for the year 2001
- to enable Discoverer end users to easily look at data for different quarters, you might create the optional conditions: Quarter = Q1, Quarter = Q2, Quarter = Q3, and Quarter = Q4. When they access workbooks, Discoverer end users will be able to focus on data for particular quarters by applying these conditions

Name

Use this field to enter a name for the new condition.

Generate name automatically

Select this check box for Discoverer to create a name for you.

Clear this check box to enter a name for this condition.

Description

Use this field to enter additional information about the condition. This description is displayed when you select this condition in the Workarea, and in Discoverer Plus. Make your description useful to both you and your users.

Location

This field displays the name for folder that will store the condition. This is the location you selected when you chose Insert | Condition.

Type

Use this drop down list to choose the condition type:

- **Mandatory** - mandatory conditions are always applied to a worksheet that contains one or more items from the folder that contains the condition. Discoverer Plus users are not notified of mandatory conditions and can not turn them off.
- **Optional** - optional conditions can be turned on or off as required by Discoverer Plus users.

Formula

Use this field to specify the filter criterion that you want to use.

- **Item**
Use this drop down list to choose what item you want to filter the data on. For example, choose Year here if you want to display data for a particular year.
- **Condition**
Use this drop down list to choose how to match data against the item. For example, choose the greater than symbol (>) here to filter data where the item value is greater than a particular number.
- **Value(s)**
Use this field to enter one or more values that you want to use to match against the selected Item. For example, if you want to filter information about people who earn more than \$30,000, enter 30,000 here.
If you created a list of values for the item, these items appear in the drop down list.
You can also click the drop down list and match against the following:
 - Click **Select Multiple Values** to display the Values dialog.
You select one or more values to use in the condition.
 - Click **Create Calculation** to display the Edit Calculation dialog.

You create a calculation to use in the condition.

- Click **Select Item** to display the Items dialog.

You select an item to use in the condition.

Note: You can enter up to 254 values in this field. If you want to enter more than 254 values in the condition, click Advanced and use the OR option to add a new condition statement line for the extra values.

Match case

Use this check box to match upper and lower case text data exactly. When selected, the match value 'New York' would not return data for 'new york'.

Advanced

Use this button when you want to create more than one filter criterion. Here, you display additional fields and buttons used to create advanced conditions (see "[New Condition dialog \(Advanced\)](#)").

New Date Format dialog

Use this dialog to create a new date format. For example, you might want to create a new format for Year containing the last two digits only of a typical four digit year (e.g. to display the digits 01 to represent 2001, 02 to represent 2002 and so on).

You can use the new format in date hierarchies.

For more information, see:

["What are date hierarchies?"](#)

["What are date items?"](#)

["What are date format masks?"](#)

Date format group

Use this drop down list to choose the group in which you want the new date format to be included (e.g. Year, Quarter, Month).

New Format

Use this field to enter the date format mask that you want to use. For example, use Mon-YYYY to display the month plus the four digits of the year.

Notes

- A new date format must conform to the SQL Date Format Model, for example YYYY, YYY, YY, RR etc.
- You can prefix a new Date Format with descriptive text by enclosing the descriptive text in quotes (e.g. "Fiscal Year" YYYY).

New Item dialog (select a folder for)

Use this dialog to choose where you want to store the new item. For example, if you do not select a folder before choosing Insert | Item, you select a folder here.

Discoverer displays this dialog when the currently selected folder does not use the item that you are about to create.

This dialog is also displayed as:

New Item dialog

For more information, see:

["What are items?"](#)

["What are folders?"](#)

Business Area

Use this drop down list to select a business area, then choose the folder in which to store the item from the expandable item list below.

New Item dialog

Use this dialog to create items based on EUL objects and/or functions. Items can be derived items, aggregate calculated items or aggregate derived items.

For more information, see:

["What are items?"](#)

["What are calculated items?"](#)

["How to create calculated items"](#)

For example:

- to create an item named Year, based on the EUL item Calendar Year
- to create a calculated item named Sales Target, based on the formula Sales SUM * 1.25
- to create a calculated item named Profit, based on the formula Sales SUM - Profit SUM
- to create a calculated item named Rank Sales, based on the formula RANK () OVER (ORDER BY Sales SUM)

Show

Use these radio buttons to display calculations, functions, and item that you can use to build a calculation. To include items in the calculation, paste them into the **Calculation** field.

- **Items**

Use this radio button to display the EUL items available.

- **Functions**

Use this radio button display the functions available.

Paste

Use this button to the add the item currently selected in the **Show** list to the Calculation. The item is copied into the **Calculation** field.

Name

Use this field to enter a name for the item or calculated item. Discoverer Administrator creates a default name for you.

Calculation

Use this field to enter the calculation details (for calculation examples, see *Oracle Application Server Discoverer Plus User's Guide*).

To create a calculation, you can use any or all of the following methods:

- Type the formula directly into the **Calculation** field.
Note: If you type an expression in the **Calculation** field, you must prefix the expression with an equals sign (i.e. =). For example, '=Sales SUM-Costs SUM'.
- Paste items and functions from the **Show** field on the left into the calculation.
- Click the operator buttons underneath the **Calculation** field to use them in the calculation.

Operator buttons + - x / % ()

Use these buttons to add operators to the calculation. Operators are copied into the **Calculation** field.

Note: When you use arithmetic expressions in a calculation, the multiply and divide operators are executed first, regardless of their position in the calculation. If you have more than one operator of the same precedence, they are evaluated from left to right.

For example, the calculation Price – Discount * Quantity is evaluated as Discount*Quantity subtracted from Price. If you use parentheses around the subtraction expression (Price – Discount), the subtraction is executed before the multiplication.

OK

Use this button to validate and save the calculation, as follows:

- If the calculation has valid syntax, the calculation is saved and displayed in the Calculations dialog.
- If the calculation has invalid syntax, an error message is displayed. You must correct any syntax errors before you can save the calculation.

Notes

- The table below shows the functions available in the field beneath the **Show** field:

Category	Description
All Functions	An alphabetical list of all functions.
Analytic	Advanced statistical analysis, such as RANK, NTILE, CORR.
Conversion	Converting from one data type to another, such as: RAWTOHEX, TO_CHAR, TO_DATE.
Database	Optional category that is displayed when user defined functions are available (created using the Register PL/SQL Functions facility on the Tools menu).
Date	Manipulating date items such as ADD_MONTHS, NEW_TIME, SYSDATE and NEXTDATE.
Group	Aggregate and statistical functions including SUM, COUNT, MAX, MIN, VARIANCE.
Numeric	Numeric items, transcendentals and floating point such as COS, LOG, MOD, POWER.
Others	Miscellaneous functions such as LEAST, USER, DECODE, ROWNUM.
String	Character items, text operations such as INITCAP, LPAD, NLS_UPPER.

- For detailed information about all functions available in Discoverer, see *Oracle8i/9i SQL Reference* and *Oracle8i/9i Data Warehousing Guide*.
- For examples of the most commonly used functions, see *Oracle Application Server Discoverer Plus User's Guide*.

New Join dialog (select a folder for)

Use this dialog to choose where you want to store the new join. For example, if you do not select a folder before choosing Insert | Join, you select a folder here.

The Choose Folder window might appear in any of the following cases:

- The currently selected folder does not use the join you are about to create.
- No folder is selected on the Workarea.

This dialog is also displayed as:

New Join dialog

For more information, see:

["What are joins?"](#)

["What are business areas?"](#)

["How to create joins"](#)

Business Area

Use this drop down list to select a business area. Then, choose the folder in which to store the join from the expandable item list below.

Online Dictionary Options dialog

Use this dialog to specify what types of tables and views you want to see in the "[Load Wizard: Step 2 dialog](#)". For example, you can display all tables and views accessible to a user, not just those owned by a user.

For more information, see:

["What is the Load Wizard?"](#)

Which tables (and views) do you want to see?

- **Tables owned by user**

Use this radio button to make available tables and views that belong to the user IDs specified in "[Load Wizard: Step 2 dialog](#)".

Choose this option:

- When you have a schema, and you want to load tables or objects based on the schema permissions.
- When you have a schema owner, and you want to load tables or objects based on the schema grants. For example, an owner such as FINAPPS, who owns all of the data tables used by the Financial Applications system and has granted access rights to other users to view those tables.

- **Tables accessible by user**

Use this radio button to make available tables and views to which the user IDs have been granted SELECT access in the database.

What types of tables (and views) do you want to see?

- **Public tables**

Select this check box to import tables and views in the selected user IDs' schema that have been granted public access. For example, JOE is seeing publicly accessible tables.

- **Partially restricted tables**

Select this check box to import the tables and views in the selected user IDs' schema that have also been granted some access to another user ID. For example, user ID Bob could grant SELECT privileges on Table D in the database to user ID Betty. Table D would be designated as a partial access object. Use this option to display a list of partial access objects that are either owned by a user

ID or objects to which the user ID has been given explicit SELECT access. For example, JOE has been granted specific access to these tables.

- Private tables

Select this check box to import the tables and views in the selected user IDs' schema that are not accessible by any other user ID.

Notes

- A user ID can own tables and also grant access to other user IDs. For example, an application owner, such as FINAPPS, owns all of the data tables used by the Financial Applications system and has granted access rights to other users to view those tables.

Open Business Area dialog

Use this dialog to specify which business areas you want to open in the Discoverer Administrator Workarea. For example, you might want to work with your own business area and the Video Stores Tutorial business area.

For more information, see:

["What are business areas?"](#)

["Loading from the online dictionary"](#)

["Loading from a Gateway"](#)

Available

This list displays business areas that are available. To open business areas, move the business areas from the **Available** list to the **Selected** list.

Selected

This list contains the business areas that will open in the Workarea. If you do not want to open business areas in this list, move these business areas from the **Selected** list to the **Available** list.

Notes

- You can select more than one business area by pressing the Ctrl key and clicking another business area.
- You cannot open the same business area twice. If you select a business area that is already open in the Workarea, the Open command will have no effect. To see another view of the same business area, choose New Window from the Window menu to display another Workarea window.

Options dialog: Connection tab

Use this dialog to specify the connection details to display in the "[Connect dialog](#)". For example, if you always connect to Oracle Applications EULs, you might configure the Connect dialog to prompt you to enter Oracle Applications connection details.

For more information, see:

["How to start Discoverer Administrator"](#)

["Options dialog: Default EUL tab"](#)

Connection tab

What type of EULs would you like to connect to?

- **Connect to standard EULs**

Use this radio button when you only want to connect to standard EULs using Discoverer Administrator.

If you select this radio button, the Oracle Applications User check box is not displayed in the Connect dialog.

- **Connect to applications EULs**

Use this radio button if you only want to connect to Oracle Applications EULs using Discoverer Administrator.

If you select this radio button, the Oracle Applications User check box is not displayed in the Connect dialog, but you must login using your Oracle Applications user ID and Responsibility.

Note that if you select this check box, you can only log in to Oracle Applications EULs.

- **Connect to both standard and applications EULs**

Use this radio button when you want to be able to connect to both standard and Oracle Applications EULs using Discoverer Administrator.

If you select this radio button, the Oracle Applications User check box is displayed in the Connect dialog and allows you to:

- connect to Oracle Applications EULs by selecting the check box and specifying Oracle Applications connection details

- connect to standard EULs by clearing the check box and specifying standard database user details

Applications EUL Settings

Use these fields with an Oracle Applications EUL. Discoverer Administrator uses default values for both these fields if you do not enter any values.

Gateway User ID (GWYUID) / password

Use this field to specify the user name and password of the public Gateway (i.e. identified by the Gateway User ID/password) that Discoverer Administrator is to use when logging in to an Oracle Applications EUL. Use the forward slash (/) character to separate the user name and password.

You enter a Gateway User ID to override the default values (APPLSYSPUB/PUB) that Discoverer uses.

If you do not specify a Gateway User ID and password, Discoverer Administrator will use the default values specified above.

Foundation Name (FNDNAM)

Use this field to specify the FND schema that owns the core Oracle Applications tables and views.

Enter a Foundation Name to override the default value (APPS) that Discoverer uses.

If you do not specify a Foundation Name, Discoverer Administrator will use the default value specified above.

Notes

- The default values for the Gateway User ID/password and Foundation Name for Discoverer Administrator, are defined in the Windows Registry. For more information, see "[What are the Discoverer Administrator and Discoverer Desktop registry settings?](#)".

Options dialog: Default EUL tab

Use this dialog to specify the default EUL to connect to when you start Discoverer Administrator.

For more information, see:

["What is an End User Layer?"](#)

["How to start Discoverer Administrator"](#)

["Options dialog: Connection tab"](#)

Which EUL would you like as your default?

Select a default EUL:

Use this field to choose which EUL you want to connect to by default when you start Discoverer Administrator. When you next connect to Discoverer Administrator, the Load Wizard will display business areas from the EUL that you chose here.

Notes

- If you want to create new EULs, you must have write access to the default EUL that you specify here. If you do not have write access to the default EUL, the Create business area option will not be available in the Load Wizard. For more information, see ["What are the data access prerequisites?"](#) and ["About Discoverer access permissions"](#).

PL/SQL Functions dialog: Arguments tab

Use this dialog to define arguments for PL/SQL functions that are registered.

You can register PL/SQL functions that have been defined in the database, using SQL commands.

For more information, see:

["Why do you need PL/SQL functions?"](#)

Functions tab

Use this tab to display the ["PL/SQL Functions dialog: Functions tab"](#).

Functions

This field displays Oracle-supplied PL/SQL functions and user-defined PL/SQL functions that have already been registered for use with Discoverer Administrator.

Arguments

This field displays a list of arguments defined for the function currently selected in the **Functions** field.

New

Use this button to create a new argument. Discoverer generates a default argument name and fields are initialized with default values. You can then edit the default values to configure the new argument as required.

Delete

Use this button to delete the currently selected argument. The argument is removed from the **Arguments** field.

Move Up/Move Down

Use these buttons to rearrange the list of arguments in the **Arguments** field. This is useful if an argument is out of place ordinarily, or if the function itself has been modified and you need to update the function definition.

Attributes for <argument selected in Arguments field>

This area displays information about the selected PL/SQL function.

Name

Use this field to enter the argument name. When you add an argument, a default name is created by Discoverer Administrator.

Description

Use this field to enter additional information about the argument. When you add an argument, a default description is created by Discoverer Administrator.

Data Type

Use the drop down list to specify the argument data type for this field (the default is Number).

Identifier

Use this field to change the unique name that Discoverer uses to identify EUL and workbook objects.

Usage

■ **Optional**

Use this radio button when the argument is an optional argument to the function.

■ **Required**

Use this radio button when the argument is a mandatory argument to the function.

PL/SQL Functions dialog: Functions tab

Use this dialog to manage PL/SQL functions available to Discoverer Administrator. To register functions, you can:

- create your own PL/SQL functions manually (i.e. use the New button)
- import PL/SQL functions defined in the database (i.e. use the Import button)

For more information, see:

["Why do you need PL/SQL functions?"](#)

Arguments tab

Use this tab to define arguments for the function that you are registering (for more information, see ["PL/SQL Functions dialog: Arguments tab"](#)).

Functions

This field displays a list of Oracle-supplied PL/SQL functions and user-defined PL/SQL functions that have already been registered for use with Discoverer Administrator. When the **Available in Discoverer Plus** check box is selected, these registered functions are also available to Discoverer end users to use in calculations.

Attributes for <function selected in Functions field>

This area displays information about the selected PL/SQL function.

Function Name

Use this field to enter a name for the function. The Function Name can be different from the Display Name.

Display Name

Use this field to enter a name for the function. This name will be visible in the Discoverer Administrator in the Edit Calculation window, and in Discoverer Plus if the Available in Discoverer Plus check box has been selected.

Owner

Use this field to enter the user ID of the owner of the function. Changing this value enables you to move the reference from a development environment to a production environment.

Package

Use this field to enter the package that contains this function. A package is used in the Oracle database to group many functions together by category for easier management.

Database Link

Use this drop down list to select the database that stores the function. This is a particularly useful feature if you are using distributed databases.

Return Type

Use this drop down list to enter the data type of the data returned by the function. For example, a function might return a character string (char) or a number.

Description

Use this field to enter additional information about the function.

Identifier

Use this field to change the unique name that Discoverer uses to identify EUL and workbook objects. When matching objects common to different EULs, Discoverer uses identifiers to locate objects in different EULs that refer to the same business object.

Available in Discoverer Plus

Use this check box to enable Discoverer end users to use this function in calculations.

Validate

Use this button to test the validity and accuracy of the information you have entered. The Discoverer Administrator generates a test SQL statement that includes the PL/SQL function and tests the query. This test validates the existence of the function (i.e. by properly naming and locating it), its owner, and tests the data return type.

New

Use this button to register a new PL/SQL function. A default function name is generated and fields are initialized with default values. You can then edit the default values to configure the new function as required.

Delete

Use this button to remove the PL/SQL function currently selected in the **Functions** field.

Import

Use this button to display the "[Import PL/SQL Functions dialog](#)", where you import PL/SQL functions defined in the database. Once you have imported PL/SQL functions, you register them so that Discoverer Administrator can use them.

Privileges dialog: Privileges tab

Use this tab to grant privileges to users or roles (role is replaced with responsibility for Oracle Applications users). For example, to enable Discoverer Plus and Discoverer Desktop and Discoverer Plus end users to create and edit queries, drill down, and drill out, but not allow them to save workbooks to the database.

For more information, see:

["About Discoverer and security"](#)

Show privileges for

User

Select this check box to display users in the drop down list to the right.

Role

Select this check box to display roles in the drop down list to the right.

Use the drop down list to choose the user or role whose privileges you want to configure. For example, choose jchan to display the privileges for jchan in the **Privilege** field.

Administration Privilege

Use this check box to grant or revoke the ability of the currently selected user or role to use Discoverer Administrator.

Desktop and Plus Privilege

Use this check box to grant or revoke the ability of the currently selected user or role to use Discoverer Desktop and Discoverer Plus.

Use the check boxes in the fields under the **Administration Privilege** and **Desktop and Plus Privilege** check boxes, to grant or revoke privileges to the currently selected user or role as follows:

- To grant Discoverer Administrator privileges, select individual privileges in the group under the **Administration Privilege** check box. These privileges apply to Discoverer Administrator.
- To grant Discoverer Desktop and Discoverer Plus privileges, select individual privileges in group under the **Desktop and Plus Privilege** check box. These privileges apply to Discoverer Desktop and Discoverer Plus.

(description field)

This field displays a brief description about the currently selected privilege.

Select an Oracle system profile

Use this drop down list to specify an Oracle system profile to apply to the user. This allows you to apply pre-defined sets of privileges to users and roles.

- system profiles are Oracle-specific
- if you are using a non-Oracle database, this field is grayed out

Notes

- The **Roles** check box and the **Oracle system profile** field are unavailable if you are not using an Oracle database.
- If your current user ID does not have access to the table DBA_ROLES (Oracle databases), only a subset of roles and responsibilities might be visible in the drop down list.
- Administration privilege types available:

Privilege Name	Description
Administration Privilege	Granting this privilege, allows the user or role to log in to Discoverer Administrator. Note that to allow the user to access the features in Discoverer Administrator, you must select individual Administration features (privileges) listed below this privilege. This check box must be selected in order to grant any of the privileges listed below.
Format Business Area	Granting this privilege, allows the user or role to edit formatting information in an existing business area to which they have access. Such formatting information includes folders, summary folders, joins, and items. Granting this privilege allows the user or role to specify names, descriptions, default format masks and placement.
Create/Edit Business Areas	Granting this privilege, allows the user or role to create and modify business areas, folders, summary folders, joins, calculations, conditions, hierarchies and item classes.
Create/Edit Summaries	Granting this privilege, allows the user or role to create summary folders through Discoverer Administrator. Also requires database resource privileges.

Privilege Name	Description
Set Privilege	Granting this privilege, allows the user to maintain and modify user privileges using this dialog box. Note: You cannot grant this privilege to a role.
Manage Scheduled Workbooks	Granting this privilege, allows the user or role to monitor and maintain the schedule for scheduled workbooks.

- Desktop and Plus privilege types available:

Privilege Name	Description
Desktop and Plus Privilege	Granting this privilege, allows the user or role to log in to Discoverer Desktop and Discoverer Plus. Note that to allow the user to access the features in Discoverer Desktop and Discoverer Plus, you must select individual Desktop features (privileges) listed below this privilege. This check box must be selected in order to grant any of the privileges listed below.
Create/Edit Query	Granting this privilege, allows the user or role to create new worksheets (queries) and modify existing ones. Without this privilege, the user can only open and run existing (predefined) workbooks and worksheets.
Collect Query Statistics	Granting this privilege, saves performance statistics when this user runs worksheets/workbooks (queries). If you clear this check box query prediction estimates might be less accurate. For more information, see " Predicting query performance ".
Item Drill	Granting this privilege, allows the user or role to drill to detail and related information in the worksheet. In addition to granting this privilege, you must create the drill using the Item Class wizard before the user will be able to use this function.
Drill Out	Granting this privilege, allows the user or role to launch another application to see related information by drilling on an item in the worksheet. In addition to granting this privilege, you must create the drill using the Item Class wizard before the user will be able to use this function.
Grant Workbook	Granting this privilege, allows the user or role to grant access to their workbooks so other users can run and view them.
Schedule Workbooks	Granting this privilege, allows the user to schedule a workbook to run at a later time and at regular intervals (i.e., daily, weekly, monthly). Note: You cannot grant this privilege to a role.

Privilege Name	Description
Save Workbooks to Database	Granting this privilege, allows the user or role to save the workbooks they create in the database. By default, Discoverer Desktop workbooks are saved on the user's hard drive.
Change Password	Note: This privilege is not used in this release.

Privileges dialog: Query Governor tab

Use this tab to view and edit the query configuration for a specified user or role (role is replaced by responsibility for Oracle Applications users). For example, to limit the number of rows that can be retrieved for the user jchan.

For more information, see:

["Controlling access to information"](#)

Show query limits for

User

Select this check box to display users in the drop down list to the right.

Role

Select this check box to display roles in the drop down list to the right.

The roles check box is only available when you are using an Oracle database.

(Drop down user/role list)

Use this drop down list to choose the user or role whose query limits you want to configure. For example, choose jchan to display the query limit settings for jchan in the Query Governor panel.

Query Governor

Warn user if predicted time exceeds: _ minutes

Select this check box to display a warning to the Discoverer end user if a query takes longer than the amount of time specified.

This privilege is only available when using an Oracle database.

Prevent queries from running longer than: _ minutes

Select this check box to limit the query time for the selected user.

Limit retrieved data to: _ rows

Select this check box to limit the number of rows a users query can return. The limit you set here is a maximum. The end user can set a limit that is lower. When a query has reached the maximum number of records set by you or the end user, the query

stops and the data retrieved so far is returned to the end user. For example, if the check box is selected and the value 1000 is entered, only the first 1000 rows of a query are displayed on a Discoverer end user worksheet.

Privileges dialog: Scheduled Workbooks tab

Use this tab to specify scheduled workbook settings for a specified user or role (role is replaced by responsibility for Oracle Applications users). For example, to limit the number of workbooks that a user can schedule, or to define the expiry date of scheduled workbooks.

For more information, see:

["Scheduling workbooks"](#)

["About Discoverer and security"](#)

["How to set scheduled workbook limits"](#)

Show scheduling limits for user

Use this drop down list to choose the user or role for which you want to specify scheduled workbook settings. For example, choose jchan to display the scheduled workbooks settings for jchan.

Note: If you select a user or role that does not have schedule workbook privileges, the configuration details are disabled. If you want the user or role to have this privilege, see [Chapter 6, "How to specify a user or role \(responsibility\) to perform a specific task"](#):

Select user to own the tables which store the workbook results

Use this drop down list to select the user name of the database user that will own the scheduled workbooks tables.

Require users to schedule workbooks

- **User must always schedule workbooks**

Use this radio button for a Discoverer end user only to run queries using the scheduled workbooks facility.

- **User is never required to schedule workbooks**

Use this radio button to enable users to choose whether or not they want to run queries using the scheduled workbooks facility.

- **Schedule only if predicted time exceeds**

Use this radio button for users to schedule workbooks if the predicted time to run the query exceeds the value specified in the **Minutes** field.

Limit number of scheduled workbooks

Use this check box to specify the maximum number of workbooks that a user can schedule. Use this option to control the use of the DBMS_JOB queue and prevent system overload.

Expire results

Use this check box to limit the lifetime of scheduled workbook results. Results due for deletion are deleted when the user disconnects from the EUL.

Commit size

Use this check box to specify the number of rows that are committed to the result table at a time, when Discoverer processes the scheduled workbook. On large result sets, server performance is improved by setting the commit size higher than the default.

Restrict the hours during which a workbook may be scheduled

Use this check box to specify when a user can schedule workbooks. This could be exploited to prevent users from scheduling workbooks at peak times.

Privileges dialog: User/Role tab

Use this tab to configure specific privileges for users and roles. For example:

- to look at which users and roles have Administration privileges
- to check that a group of roles have the Save Workbooks to Database privilege
- to revoke drill out privileges for specified users

Note that Oracle Applications users have responsibilities instead of users.

For more information, see:

["About Discoverer and security"](#)

["How to specify a user or role \(responsibility\) to perform a specific task"](#)

Show users/roles with privilege

User this drop down list to choose a privilege that you want to look at. For example, choose Save Workbooks to Database to display the users and roles that have this privilege in the **Show** field.

Users

Use this check box to look at user privileges.

Roles

Use this check box to look at role privileges. This option is only available when you are using an Oracle database.

Show: (*Users/Roles list*)

This field displays all users and roles and whether they have the currently selected privilege. A privilege is applied to a user or role when the check box next to the user or role is selected. The list is updated when you select a new privilege in the **Show users/roles with privilege** field.

- To grant a privilege, select the check box next to the user or role that requires the currently selected privilege.
- To revoke a privilege, clear the check box next to the user or role that does not require the currently selected privilege.

Privilege Description

This field displays additional information about the currently selected privilege.

Properties dialogs

Choose one of the following help topics:

["Business Area Properties dialog"](#)

["Condition Properties dialog"](#)

["Folder Properties dialog"](#)

["Item Properties dialog"](#)

["Join Properties dialog"](#)

["Summary Properties dialog"](#)

Refresh Business Area dialog

Use this dialog to look at differences that have been found between the folders and items in the current business area and source tables in the database to which they link. For example, if a new primary key has been detected in the source database, you can use this dialog to correct this in the business area and continue the refresh. You can also assess the impact that changes will have on other objects in the business area.

For more information, see:

["Creating and maintaining business areas"](#)

["How to synchronize a business area with the database"](#)

Name

This field displays the name of the item that is different.

Type

This field displays the type of change that has occurred. For example, the source table has a new foreign key.

Actions

This field displays the effect that completing the refresh will have on the object and the check box enables you to switch the action on or off.

OK

Use this button to start the refresh using the options selected.

Impact

Use this button to display the ["Impact dialog"](#). The Impact dialog displays a list of objects that will be affected or removed if you refresh this business area.

Refresh Summaries dialog

Use this dialog to refresh the currently selected summary folder. For Oracle 8.1.7 (or later) Enterprise Edition databases you can also specify an incremental refresh if available (for more information, see the *Oracle9i Data Warehousing Guide* for conditions).

For more information about refreshing summary folders, see:

["How does ASM work?"](#)

["Why must you refresh summary data?"](#)

["What happens when a summary folder is refreshed?"](#)

When would you like to refresh this summary?

- **Refresh the summary immediately**

Use this radio button to refresh the selected summary folder immediately. Refresh will begin after clicking OK.

This option is useful when you have smaller materialized views or summary tables, or when you need to refresh the summary folder right away, without relying on the scheduling capabilities of the database server. Discoverer Administrator displays a progress bar enabling you to monitor the refresh.

- **Schedule the refresh at a later time**

Use this radio button to enable the **Date** and **Time** fields where you can use the arrow buttons or type into the fields to select a later date and time when you want the refresh to occur.

This option submits a job to the queue using DBMS_JOB and immediately returns you to Discoverer Administrator (rather than waiting for the refresh to be complete) enabling you to continue working. This option is useful when you have larger materialized views or summary tables, which are best built during off-peak hours.

Perform Incremental refresh

Select this check box to perform an incremental refresh, available against Oracle 8.1.7 (or later) Enterprise Edition databases only.

An incremental refresh is faster than a full refresh as it incrementally adds the new data that has been inserted into the tables.

During a summary folder refresh with Oracle Standard Edition databases a full table scan is carried out.

Clear this check box to refresh the summary using a full table scan.

Notes

- The length of time taken for the refresh to complete depends on the data volume and the current database engine load.
- For further information on the conditions required for incremental refresh, please see *Oracle9i Data Warehousing Guide*.

Refresh Summary Folder dialog

Use this dialog to set the refresh date and time for a summary folder.

This dialog is also displayed as:

Summary Wizard: Step 4

Summary Wizard: Step 5

Summary Wizard: Step 6

Edit Summary dialog: Refresh tab

For more information about refreshing summary folders see:

["How does ASM work?"](#)

["Why must you refresh summary data?"](#)

["What happens when a summary folder is refreshed?"](#)

For summary folders (based on Discoverer summary tables or materialized views) refreshed by Discoverer

For summary folders refreshed by Discoverer, you can decide whether to refresh the summary automatically. If so, you can specify the date and time and the interval that you want to repeat the refresh.

When was this summary folder last refreshed by Discoverer?

These read-only fields display the date and time of the last refresh.

Automatically refresh this summary folder, starting on:

Use this check box to specify the date, time and repeat period that you want to apply to the refresh of this summary folder.

For summary folders (based on external summary tables) refreshed by another application

For summary folders refreshed by another application (i.e. using external summary tables) , you can decide whether you want Discoverer to refresh the summary folder automatically, and if so you specify a date and time and the interval that you want to repeat the refresh.

Manage the refresh of this summary

Use this check box if you want Discoverer to manage the refresh of this summary folder.

Note: Be aware that if you use this option, you give Discoverer full control over the external summary table. For example, if you delete the summary folder that is based on a managed external summary, you also delete the external summary folder.

When was this summary last refreshed?

Date/Time

Use this field to enter the date and time the summary data was last refreshed. Discoverer uses this information to determine when summary folder data should be used.

Automatically refresh this summary folder, starting on:

Use this check box to specify the date, time and repeat period that you want to apply to the refresh of this summary folder.

Refresh Wizard dialog

Use the Refresh Wizard to refresh business areas in the current End User Layer. For example, when you make modifications to the database, the refresh facility synchronizes the business area with the data dictionary, incorporating database modifications into the business area.

Refresh Wizard Step 1

Use this dialog to specify how you want a business area to be refreshed. For example, if you are using an Oracle database, you refresh from the online dictionary.

Refresh business areas from:

- **On line dictionary**

Use this radio button to refresh the business area from the Oracle database tables on which the business area is based.

- **Gateway**

Use this radio button to refresh the business area from the source that you select from the drop down list.

Finish

Use this button to start the refresh process from the online dictionary.

Notes

- If you choose the Gateway check box, click Next to display the Refresh Wizard Step 2.

Refresh Wizard Step 2

Use this dialog to select the gateway application that you want to refresh from.

Select the application you want to refresh from

Use this drop down list to select the gateway application that you are using as the source for the current EUL.

Finish

Use this button to start the refresh process from the selected gateway application.

Repository Users dialog

There might be a single database user that all Discoverer end users can exploit, or different ones created for each database user. The advantage of having a single database user is that individual end users do not need additional privileges to process scheduled workbooks, but the disadvantage is that space quota is shared, and so could be exhausted by a single user. Having multiple repository users provides a greater degree of control.

Responsibilities dialog

Use this dialog to select an Oracle Applications responsibility with which to connect to an Oracle Applications EUL.

For more information, see:

["Using Discoverer with Oracle Applications"](#)

Responsibility list

Use this drop down list to select the responsibility that you want to connect to the database with.

OK

Use this button to connect to the database as the selected responsibility.

Schedule Workbook dialog: General tab

Use this dialog to:

- edit the description of a scheduled workbook
- specify the interval between when Discoverer processes the scheduled workbook and when you want Discoverer to delete results automatically

For more information, see:

["Scheduling workbooks"](#)

Name this scheduled workbook:

This read-only field displays the name of the scheduled workbook.

Description:

Use this field to enter additional information about the scheduled workbook. Discoverer end users will see this information when deciding which workbook to open.

Scheduled workbooks save results each time they run. Do you want to keep all versions of results?

- **Yes, keep all results**

Use this radio button when you do not want to delete results sets when new results sets are created. For example, for a monthly report, do not delete the January and February results set when the March results set is created.

- **No, just keep the latest set of results**

Use this radio button when you do want to delete old results sets when new results sets are created. For example, for a monthly report, delete the January results set when the February results set is created.

How long do you want to keep the results?

Delete results automatically after: _ days

Use this spin box to specify the interval in days between running this workbook and automatically deleting the workbook results. For example, you might want to delete the results set of a weekly report every seven days.

Parameters...

Use this button to display any parameters used in this scheduled workbook.

Scheduled Workbook dialog: Parameter values

Use this dialog to view parameter values required by worksheets. For example, a workbook might use the parameter '2001' when it is required to display data for the year 2001.

For more information, see the *Oracle Application Server Discoverer Plus User's Guide*.

Parameter list

This area contains one or more fields in which you view the parameter values for the scheduled worksheet. Each field can also display a name.

Schedule Workbook dialog: Schedule tab

Use this dialog to specify when you want Discoverer to process the scheduled workbook. For example, you might want Discoverer to process a workbook at 1:00 a.m. every Sunday morning.

For more information, see:

["Scheduling workbooks"](#)

Sheets included in the scheduled workbook:

Lists all the sheets included in the currently selected scheduled workbook.

Schedule this workbook on:

Use these fields to specify when you want Discoverer to process the scheduled workbook.

Time:

Use this spin box to specify the time at which you want Discoverer to process the scheduled workbook. The current time is displayed by default.

Date:

Use this spin box to specify the date on which you want Discoverer to process the scheduled workbook. The current date is displayed by default.

How often do you want to repeat this schedule?

Use these fields to specify how often you want Discoverer to process this scheduled workbook.

- **Never**

Use this radio button when you want Discoverer to process a scheduled workbook only once. For example, for an occasional report requested by your manager.

- **Repeat every:**

Use this radio button when you want Discoverer to process a scheduled workbook at regular intervals. For example, once per day or once per month.

Security dialog: Business Area - > User tab

Use this tab to grant or revoke multiple user access to a single business area. For example, to give a group of Discoverer end users access to the Video Store Tutorial business area so that they can use the Discoverer Plus tutorial.

To grant a single user access to multiple business areas at once, use the "[Security dialog: Users - > Business Area tab](#)".

For more information, see:

["Controlling access to information"](#)

Business area

Use this drop down list to select the business area to which you want to grant access. The drop down list displays business areas that you currently have open. If you cannot see the business area to which you want to grant access, reconnect to Discoverer and open that business area.

Available users/roles

Use this field to choose which users and roles you want to grant access to the selected business area. To grant access, move user names and roles from the **Available users/roles** field to the **Selected users/roles** field.

Selected users/roles

Use this field to see which users have access to the selected business area. To revoke access, move user names and roles from the **Selected users/roles** field to the **Available users/roles** field.

Show

Users

Use this check box to display Discoverer users in the **Available users/roles** field.

Roles

Use this check box to display Discoverer roles in the **Available users/roles** field.

Allow Administration

Use this check box to grant both access and administration rights to the users selected in the **Selected users/roles** field. The operations the user can perform on the granted business area depend on the user's Administration privileges.

Notes

- Before displaying the folders in a business area, Discoverer checks if the user has database access to the tables referenced in the folders. If they don't have the necessary permission, Discoverer does not display the folders. You can override this check by changing the value of the ObjectsAlwaysAccessible registry setting (for more information, see ObjectsAlwaysAccessible in [Chapter 20, "Discoverer registry settings"](#)).
- When logged in as an Oracle Applications user, the term Role is replaced with Responsibility.
- You can select more than one user or role by pressing the Ctrl key and clicking another user or role.

Security dialog: Users - > Business Area tab

Use this tab to grant or revoke user access to multiple business areas. For example, to grant a new Discoverer end user access to a number of business areas in the End User Layer.

To grant multiple users access to a single business area, use the "[Security dialog: Business Area - > User tab](#)".

For more information, see:

["Controlling access to information"](#)

User/Role

Use this drop down list to choose the user or role that requires access.

Show

Users

Use this check box to display Discoverer users in the **User/Role** drop down list.

Roles

Use this check box to display Discoverer roles in the **User/Role** drop down list.

Available business areas

Use this field to choose which business areas you want to grant access to the selected user or role. To grant access, move business areas from the **Available business areas** field to the **Selected business areas** field.

Selected business areas

Use this field to see which business areas the selected user or role has. To revoke access, move business areas from the **Selected business areas** field back to the **Available business areas** field.

Allow Administration

Use this check box to grant both access and administration rights on the selected business areas to the user selected.

Notes

- Before displaying the folders in a business area, Discoverer checks if the user has database access to the tables referenced in the folders. If they don't have the necessary permission, Discoverer does not display the folders. You can override this check by changing the value of the ObjectsAlwaysAccessible registry setting (for more information, see ObjectsAlwaysAccessible in [Chapter 20, "Discoverer registry settings"](#)).
- When connected to Discoverer as an Oracle Applications user, the term Role is replaced with the term Responsibility.
- You can select more than one business area by pressing the Ctrl key and clicking another business area.

Select items to include in this hierarchy dialog

Use this dialog to create or edit items to include in hierarchies for use in Discoverer workbooks.

This dialog is also displayed as:

Hierarchy Wizard: Step 2

Edit Hierarchy dialog: Items tab

For more information, see:

["What are hierarchies?"](#)

["What are item hierarchies?"](#)

Select items to include in this hierarchy.

Use this drop down list to select a business area that contains the items that you want to use in the hierarchy.

Use the expandable list below to select one or more items. To add items to the hierarchy, move items from the left-hand list to the right-hand list.

Description

This field displays a brief description of the item format currently selected in the right hand list.

Promote

Use this button to move the selected item up one level in the hierarchy.

Demote

Use this button to move the selected item down one level in the hierarchy.

Group

Use this button to position selected items on the same level of the hierarchy. Use grouped items so the Discoverer end user can drill from one item to display two levels of detail (e.g. the user could drill from Product to description and full description).

Ungroup

Use this button to ungroup the selected items, which means that they are no longer on the same level of the hierarchy.

Notes

- You can select more than one item by pressing the Ctrl key and clicking another item.

Summary Properties dialog

Use this dialog to view and configure properties for this summary folder. For example, to look at the status, or change the next refresh date for a summary folder.

For more information, see:

["Managing summary folders"](#)

["What are summary folders?"](#)

["What are Discoverer summary tables?"](#)

["What are materialized views?"](#)

["Why must you refresh summary data?"](#)

Name

Use this field to enter a name for the summary folder.

Description

Use this field to enter a description for the summary folder.

Type

This read-only field indicates whether a summary folder is managed or external.

- Managed summary folder

Managed summary folders have their data refreshed at intervals you specify. Managed summary folders can contain many summary combinations.

Discoverer can create the materialized views required, and enables you to specify summary folder name, summary item names, and storage properties for summary folders you create. Alternatively you can pre-create the summary tables, and simply tell Discoverer the table owner and name.

- External summary folder

External summary folders contain tables created by an application external to Discoverer. The column and item names might differ from those in Discoverer. With this option, you register each external table and map its columns to items in the End User Layer. You can specify that Discoverer takes over management of the external summary folder, so that Discoverer can populate the materialized view and refresh the summary folder.

Available for queries

Use this field to specify whether this summary folder can be used for worksheets run in Discoverer Plus. For example, when a Discoverer end user opens a worksheet that displays items from this summary folder Discoverer Plus might use the summary folder to display the worksheet results.

Status

This read-only field displays the current point in the life cycle of this summary folder. Only summary folders that have the status Complete, are available for queries.

The following list explains the meaning of values displayed in the Status field:

- Pending
The summary refresh job is scheduled on DBMS_JOB queue, but has not yet started execution.
- Under construction
The summary refresh job has started, and is inserting the rows into the materialized view.
- Unusable
Discoverer has created a new summary a folder but has not yet refreshed it for the first time (Oracle 8.1.7 (or later) Enterprise Edition databases).
- Stale
The summary folder data is inconsistent with the detail data for a materialized view (Oracle 8.1.7 (or later) Enterprise Edition databases).
- Complete
The summary folder is complete and ready for use.
- Failed
The summary refresh job fails and Oracle displays a database error.
- Refresh Required
The end user must refresh the summary folder before it can be used. This normally happens only when the Discoverer manager has changed folder, item or join definitions in a way that requires the summary folder to be rebuilt. Discoverer displays the following reasons when refresh is required:

- Incompatible with database version
The EUL definition of the materialized view is incompatible with the version of the database. This can occur if a database export/import of the EUL has occurred across database versions. For example, from an Oracle Standard Edition database to an Oracle 8.1.7 (or later) Enterprise Edition database.
- EUL has changed
Dependent EUL item has changed its definition. For example, the formula of an item used in the summary folder.
- Server has changed
The definition of the materialized view in the database is inconsistent with the definition in the EUL (Oracle 8.1.7 (or later) Enterprise Edition databases).
- External
This summary folder is external and uses summary tables created in an application external to Discoverer.

Last refreshed

This read-only field displays the date when this summary folder last received up-to-date data from the database. This is only available for managed summary folders.

Next Refresh

Use this field to change the date when this summary folder will next receive up-to-date data from the database. This is only available for managed summary folders.

Refresh Interval

Use this field to change how often this summary folder receives up-to-date data from the database. This is only available for managed summary folders.

Identifier

Use this field to change the unique identifier that Discoverer uses to identify EUL and workbook objects. Discoverer uses identifiers to locate objects in different EULs that refer to the same business object.

Automatically save changes after each edit

Use this check box to save changes each time a field in the Summary Properties dialog is updated.

Summary Wizard (ASM): List of dialogs

The Summary Wizard enables you to use the Automated Summary Management facility to create and maintain the best set of summary folders for your organization's needs with the minimum of manual intervention.

For more information about ASM Summary Wizard dialogs, see:

["Summary Wizard: Step 1 dialog"](#)

["Summary Wizard \(ASM\): Step 2 Analyze Folders dialog"](#)

["Summary Wizard \(ASM\): Change default settings: List of dialog tabs"](#)

["Summary Wizard \(ASM\): Step 3 Allocate Space dialog"](#)

["Summary Wizard \(ASM\): Not Analyzed dialog"](#)

["Summary Wizard \(ASM\): Recommended Summaries dialog"](#)

Summary Wizard (ASM): Change default settings: List of dialog tabs

The preset default values found within Advanced Settings enable ASM to create and maintain the best set of summaries for your needs. If you want you can further refine the default setting to alter how ASM creates and maintains your summaries.

The Advanced Settings define which objects in the database to consider for inclusion in the ASM process and influence what ASM produces.

The Advanced Settings (Change Default Settings dialog) displays the following tabs:

"Summary Wizard (ASM): Change default settings dialog: Analyze tab"

"Summary Wizard (ASM): Change default settings dialog: Folders tab"

"Summary Wizard (ASM): Change default settings dialog: Query User tab"

"Summary Wizard (ASM): Change default settings dialog: Query Usage tab"

"Summary Wizard (ASM): Change default settings dialog: Deletion tab"

Summary Wizard (ASM): Change default settings dialog: Folders tab

Use this tab to specify which folders are analyzed by ASM. By default all folders are included. For example, you might have a large data warehouse and wish to only analyze the most important folders (for instance the fact tables) to reduce analysis time.

For more information, see:

["Managing summary folders"](#)

Available

This list displays folders that are not included in the ASM analysis. Choose folders for analysis by moving folders from the **Available** list to the **Included** list.

Included

This list displays folders that are included in the ASM analysis. Remove folders from the ASM analysis by moving folders from the **Included** list to the **Available** list.

Notes

- You can select more than one folder by pressing the Ctrl key and clicking another folder.

Summary Wizard (ASM): Change default settings dialog: Analyze tab

Use this tab to specify which folders to analyze and specify an optimization level. For example, to perform a complete analysis on all folders, not just those that have not already been analyzed.

For more information, see:

["Managing summary folders"](#)

How do you wish to analyze the selected folders?

- **Only analyze folders that have not already been analyzed**

Use this radio button when you have partly analyzed some folders previously, and wish to analyze the rest. When summary data has been held for more than the period specified by the **After _ days** field, this data is also re-analyzed.

- **Analyze ALL folders regardless**

Use this radio button when you want to analyze every folder in the EUL.

When would you like a folders analysis to expire?

After _ days

Use this field to specify how long to use analyzed summary data. After this period, folders will be re-analyzed when you run ASM. The default for this is 30 days.

How would you like the analysis to be optimized?

Use this slider bar to increase the speed of analyze or the range of folders analyzed.

Max Speed

At this level, around 10% of folders are analyzed. This level produces a basic set of summaries without taking too long. For example, if you have a large data warehouse and wish to minimize analysis time.

Normal

At this level, you get an equal balance between speed and range.

Max Accuracy

At this level, 100% of folders are analyzed (default setting). This setting enables the widest range of summaries to be created by ASM. For example, if you have a relatively small data warehouse or where analysis time is not an issue.

Summary Wizard (ASM): Change default settings dialog: Deletion tab

Use this tab to configure how you purge (i.e. remove) summary folders that are out-of-date. For example, to make more space available in the database.

For more information, see:

["Managing summary folders"](#)

Delete specific summary folders if

Last queried more than _ days ago

Use this field to delete summary folders if they were last used by Discoverer end users more than the number of specified days. For example, delete summary folders not used for seven days.

Created more than _ days ago

Use this field to delete summary folders if they were created before a specified time. For example, delete summary folders created more than two weeks ago.

Average usage less than _ times per _ over the last _ _

Use these fields when you want to finely control which summary folders are purged. For example, delete summary folders used less than ten times per week over the last two weeks.

Always retain the following summaries

Use this check box to exclude particular summary folders from the purge. For example, to maintain important summary folders that you always need to use.

Available

This field displays all folders that are not excluded from the purge. Select folders for exclusion from the purge by moving folders from the **Available** field to the **Selected** field.

Selected

This field displays folders that are excluded from the purge. Remove folders from the exclusion by moving folders from the **Selected** field to the **Available** field.

Notes

- You cannot move external summary folders from the **Selected** field.
- If you try to move an external summary folder from the **Selected** field to the **Available** field a warning message appears and the summary folder remains in the **Selected** field. Discoverer does not delete external summary data as it does not own it. Also deleting the metadata associated with external summary tables would not yield any great space gain which is why it is not done.

Summary Wizard (ASM): Change default settings dialog: Query Usage tab

Use this tab to select which queries are considered for summary recommendation. For example, to include only queries run a specific time when Discoverer Plus users are working.

For more information, see:

["Managing summary folders"](#)

Include

Use this drop down list to define which queries are considered for ASM.

All queries

Use this option to consider recommendations for summaries based upon all queries previously run.

Queries run since last execution

Use this option to consider recommendations for summaries based upon those queries run since the last execution of ASM.

Specific queries

Use this option to consider queries run at particular times, specified below.

- Which have been run in the last x days
- Which have been executed more than x times per minute/day/week/month/year
- Where elapsed time is greater than x seconds

Move the slider to the position which best reflects the nature of your users queries

Use this slider bar to determine whether during analysis the constructed summary data favors predetermined (performance) or ad hoc (coverage) queries.

Predetermined

Use this setting to optimize the summaries maintained by ASM to reflect historical queries. In other words, the summaries will give great performance improvements where queries stay much the same over time.

For example, ASM might recommend a list of five exact match summaries, corresponding one-to-one with previously run queries (where ASM determines there is a benefit).

Mixed

A balance between predetermined and ad hoc queries (the default).

Adhoc

Use this setting to increase the coverage of a summary giving a potential performance gain for queries that have never been run before, but are closely related to previous system usage. However, the cost of this is that the individual performance gain for the previously run queries might not be as high.

For example, ASM might combine the five exact-match summaries to form fewer but more general summaries. These would provide benefit not only for the five previously run queries but also for a greater number of other potential queries (i.e. there would be a gain in overall coverage).

Summary Wizard (ASM): Change default settings dialog: Query User tab

Use this dialog to use Query Performance Statistics (QPP) from selected users in the ASM process. For example, to base ASM on a sub-set of users that require maximum performance when using Discoverer Plus.

For more information, see:

["Managing summary folders"](#)

Available

This list displays users that are not included in the ASM process. Select users for analysis by moving users from the **Available** field to the **Included** field.

Included

This list displays users that are included in the ASM process. Remove users from the ASM process by moving users from the **Included** field to the **Available** field.

Notes

- You can select more than one user by pressing the Ctrl key and clicking another user.

Summary Wizard (ASM): Not Analyzed dialog

Use this dialog to specify how you deal with folders that cannot be analyzed. For example, when you do not have analyze privileges on a particular database.

This dialog is also displayed as:

Not Analyzed dialog

For more information, see:

["Managing summary folders"](#)

_ out of _ folders could not be analyzed. Would you like those folders to be excluded from the automatic summary creation?

Yes

Use this button to exclude folders that could not be analyzed.

No

Use this button to include folders that could not be analyzed.

Help

Use this button to get more information about the folders that could not be analyzed.

Notes

- You do not have ANALYZE privileges for a given object/table

In order to ANALYZE a table, you need one of the following:

- to be the owner of that table
- to have general ANALYZE privileges for the database (e.g. via 'grant ANALYZE any to me')

Where one of the underlying tables that make up a folder does not fit the above rules, that folder will not be analyzed. This means that if one or more tables within a folder cannot be analyzed then the whole folder is treated as if it cannot be analyzed.

- When a folder is Invalid

How you fix this depends on why a folder is marked as invalid.

To display the error message associated with an invalid folder go to View | Validate Folders.

- You are trying to ANALYZE over a DB-Link

If a folder refers to a table that resides on a database accessed over a DB-Link then ANALYZE will fail. This operation is not supported in the Oracle Server.

- When Discoverer cannot determine or access the full list of tables that constitute a folder.

A Discoverer folder can contain more than one underlying database table and/or view. Getting a full set of the underlying tables might be impossible. For example:

- Where a view is based upon another view and the ASM user has access to the top level view, but not to the referenced view underneath.

This makes it impossible for the ASM user to see which database tables are actually used to make that view.

- When folders do not fully resolve to tables

This should only really apply to the server dynamic tables (e.g. the V\$ tables, and many DBA_tables). Not all these views and tables resolve to physical tables; some of them are stored in memory, thus they cannot be analyzed.

For example:

- V\$_LOCKS

Although you can run queries on this kind of table/view, in practice it makes sense not to have summaries built on them as the summarized data would soon be out of date.

Summary Wizard (ASM): Recommended Summaries dialog

Use this dialog to look at which summaries Discoverer intends to use and change the included list if required. Discoverer might mark existing summaries for deletion when they fall outside the current ASM policy.

This dialog is also displayed as:

Recommended Summaries dialog

For more information, see:

["Managing summary folders"](#)

Include

Use this check box to include a recommended folder in the ASM summary creation/deletion process.

Action

This field displays the action that will be carried out as part of the ASM process if the **Include** check box is selected.

Name

This field displays the Discoverer folder name.

Existing space used

This field displays the amount of space currently being used for summary folders.

Total space required

This field displays the total amount of space that is needed for the recommended summary folders.

Notes

- When you first display the Recommended Summaries dialog, the summary folders that Discoverer recommends for the allocated space are selected. This means that should you click the Finish button in the main wizard the summary folders that are selected will be either be created or deleted depending on whether Create or Delete is displayed in the **Action** field. You can change which summary folders are created/deleted by selecting or clearing check boxes from the list of recommended summaries.

- The right hand pane lists the currently selected summary folder components.
- The total space required for the selected summaries is displayed underneath.
- The method used to derive the figure for the **Total space required** from the list of recommended summaries is as follows:

The amount of space required is totalled and displayed in the **Total space required** field. Where summary folders are to be deleted, the space that was used by the summary folders to be deleted is made available for use by one of the other summary folders listed. The effect is that the figure for the **Total space required** is reduced by the sum of the KB of any summary folders to be deleted.

Summary Wizard (ASM): Step 2 Analyze Folders dialog

Use this dialog to automatically analyze your database structure and recommend which summaries you need.

This dialog is also displayed as:

Summary Wizard: Step 2 dialog

For more information, see:

["Managing summary folders"](#)

(Progress indicator)

Use this bar to monitor the progress of the database analysis. When analysis is in progress, the cube above the bar revolves.

Start

Use this button to begin the folder analysis.

The first time this process is run, the analysis is based on default values. Any changes made to these values (through Advanced Settings) will be applied during subsequent folder analysis.

Continue

Use this button to resume folder analysis after you have stopped the process using the Stop button.

Stop

Use this button to pause the folder analysis.

- To resume the folder analysis, use the Continue button.
- To stop folder analysis, use the Cancel button.

Total folders in policy

This field displays number of folders included in the ASM policy.

Folders analyzed

This field displays number of folders in the ASM policy that have been analyzed.

Advanced Settings

Use this button to display the "[Summary Wizard \(ASM\): Change default settings dialog: Analyze tab](#)", where can edit a range of default settings upon which folder analysis is based (known as the ASM Policy).

Notes

- If you pause folder analysis, then change the ASM Policy, when you resume the process the new ASM Policy is used.

Summary Wizard (ASM): Step 3 Allocate Space dialog

Use this dialog to specify the ASM performance required against the amount of tablespace available for ASM. For example, to maximize ASM performance using the minimum of tablespace. You can also analyze the performance gain achieved by increasing the amount of tablespace.

For more information, see:

["Managing summary folders"](#)

Performance vs. Space (KB)

Use this graph to evaluate the performance gain achieved by using the specified amount of allocated tablespace. As you change the amount of tablespace, you can see the performance impact displayed as a factor value.

- The dotted line indicates the amount of tablespace available.
- The red line indicates the amount of tablespace selected.
- The plot line shows the performance gain achieved by selecting various amounts of tablespace.
- To change the selected space setting, either:
 - click the graph area and drag the red line to the left or right
 - drag the triangle above the Space (KB) axis to the left or right
 - click the graph area to the left or right of the red line
 - enter the amount of tablespace you wish to use (in KB) in the Create summaries to fill field

Tablespace to use for summaries

Use this drop down list to specify which tablespace you want to use to store the summary tables.

Create summaries to fill

Use this field when you know how much tablespace is available and you want to evaluate the performance for the value.

Estimated performance gain

This figure is a factor value that represents the number of times faster that queries will run if ASM creates the recommended summaries.

Recommended Summaries

Use this button to display the ["Summary Wizard \(ASM\): Recommended Summaries dialog"](#), where you specify which summaries will be created/removed for optimum performance gain given the space currently allocated.

Advanced Settings

Use this button to display the ["Summary Wizard \(ASM\): Change default settings: List of dialog tabs"](#), where you define the ASM policy.

Notes

- When choosing a tablespace, it is recommended that you place summaries in a separate tablespace specifically intended for summary data. If such a tablespace does not exist, we strongly recommend you do not use the SYSTEM or TEMP tablespaces.

Summary Wizard: Step 1 dialog

Use this dialog to specify how you want to create Discoverer summary folders. For example, to have Discoverer automatically create summaries for you.

For more information, see:

["Managing summary folders"](#)

["Creating summary folders manually"](#)

How do you want to create these summaries?

- **Have Discoverer recommend and create the best summaries for you**

Use this radio button when you want Discoverer to automatically create summary folders for you. Here, you display the "[Summary Wizard \(ASM\): Step 2 Analyze Folders dialog](#)", which enables you to automatically analyze your tables and recommend which summary folders to create.

- **I want to create the summaries myself**

Use this radio button when you want to create summary folders manually. Here, you display the "[Summary Wizard: Step 2 dialog](#)".

Summary Wizard: Step 2 dialog

Use this dialog to choose how to create summary folders. For example, to use query statistics collected on Discoverer Plus users to determine which summaries to create.

For more information, see:

["Creating summary folders manually"](#)

["Managing summary folders"](#)

How do you want to create this summary folder?

- **From items in the End User Layer**

Use this radio button to create summary folders from an existing set of folders in the End User Layer (for more information, see ["How to specify the tasks a user or role \(responsibility\) can perform"](#)).

You might select this option if, for example:

- you have switched off the Collect Query Statistics privilege (for more information, see ["How to specify the tasks a user or role \(responsibility\) can perform"](#))
- you want to manually select the combinations of EUL items that make up a summary folder

- **Based on query performance statistics**

Use this radio button to create summary folders based on Discoverer queries that were run previously. This powerful facility means that you do not have to choose the items yourself. Once you have created the summary folder based on previous queries, you can add items and combinations, tailoring it to your users' needs (for more information, see ["How to create summary folders based on users' queries"](#)).

Query performance statistics are automatically generated when queries are run in Discoverer Plus if the Collect Query Statistics privilege is switched on for users (for more information, see ["How to specify the tasks a user or role \(responsibility\) can perform"](#)).

You might select this option if you know that you want to create one or more summary folders based upon specific queries, but you do not necessarily want Discoverer to create any other summary folders.

- **Based on an external summary table**

Use this radio button to use external summary folders containing tables created with an application external to Discoverer. The column and item names might differ from those in Discoverer. With this option, you will register each external table and map its columns to items in the End User Layer. You can specify that Discoverer take over management of the summary folder, so that it can populate the table and continue to refresh its data(for more information, see "[How to create summary folders based on external summary tables](#)").

Use Query Statistics dialog

Use this dialog to specify how you collect query statistics for estimating best summaries. For example, to use query statistics where queries exceed a specified amount of CPU time.

This dialog is also known as:

Summary Wizard: Step 3

For more information, see:

["Creating summary folders manually"](#)

["Managing summary folders"](#)

Specify search criteria to obtain statistics on query performance, then click "Search"

Use these criteria to search for statistics to populate the **Select a query to be summarized** field.

Show query statistics from within the last _

Use this field to specify how recent the query statistic must be to qualify for the query list.

Average CPU Time exceeds _

Use this field to specify the minimum time required to execute the query on the database server.

Average elapsed time exceeds _

Use this field to specify the minimum time required to execute the query on the client workstation.

Number of queries exceeds _

Use this field to specify the minimum number of runs executed for the selected query. The runs might have been executed by different users at different times, but all used the same combination of folders and items.

Search

Use this button to search for query statistics matching the search criteria specified above and display them in the **Select a query to be summarized** list.

Select a query to be summarized

This list displays query statistics matching the search criteria specified.

Select a query from the list to display the query's folders, joins and items in the lower right panel of the dialog, and activate the Next button.

The #Hits column records the number of times a query has been run by end users.

Notes

- Summary folders built using Query statistics are refreshed by Discoverer.
- A check mark or cube icon indicates that the current query has found a matching summary folder from a previous query. The symbol indicates an exact match that includes all objects.

Using External Tables dialog

Use this dialog to map an external database table to the End User Layer (EUL). Run the Summary Wizard once for each external table you want to register.

External summary folders reference tables created with an application external to Discoverer. The column and item names might differ from those generated by Discoverer.

This dialog is also displayed as:

Summary Wizard: Step 3 dialog

For more information, see ["Creating summary folders manually"](#)

Select an external summary table

Use the Select button to display the ["Choose user or table/view dialog"](#), where you select a table within the current database.

Available Items

Use the drop down list to select the business area that you want to map to the external summary table.

Use the field to map EUL items (i.e. for the current business area) to corresponding database columns in the external summary table displayed in the **Mapped Items** field.

Map items in one of the following ways:

- Drag and drop

Drag an item from the **Available items** field into the corresponding database column in the **Mapped items** field.

Drag a folder from the **Available items** field into the **Mapped Items** field to map all the columns in the external summary table to End User Layer items in a single operation. Discoverer automatically matches the items of similarly named database columns in the external summary table. Repeat this procedure for multiple folders if the external summary table maps to items in more than one folder in the EUL.

- Include button

Select a database column in the **Mapped Items** field and a corresponding item in the **Available items** field and click the include button (right arrow) and Discoverer matches both in the **Mapped Items** field.

- Double click

Select an database column in the **Mapped Items** field and then double click the corresponding item in the **Available items** field.

Mapped Items:

The database columns in the external summary table mapped to corresponding items in the EUL

- Item

The item in the EUL mapped to a corresponding database column in the external summary table.

- Database Column

The database column in the external summary table mapped to a corresponding item in the EUL.

- Datatype

Data type and size of the database column.

Using Help

Oracle Discoverer Administrator provides comprehensive online context sensitive Help and reference information.

For more information, see "[About Discoverer Administrator documentation and online help](#)".

Values dialog

Use this dialog to select one or more values to use when you create or edit a condition.

For more information, see:

["What are conditions?"](#)

Discoverer displays this dialog when you choose the Select Multiple Values option from the drop down list in the Values field of the New/Edit Condition dialog.

Select values:

Select one or more check boxes next to corresponding values to include the selected values in the Value(s) field in the Conditions dialog.

Use the Select All button to select all the values displayed in the **Select Values** field.

Use the Select None button to clear all the values displayed in the **Select Values** field

The value(s) you select here are used in the current condition statement of this condition.

Workarea: Data tab

Use the Data tab to view the business areas, folders and items in the EUL that Discoverer end users see in Discoverer Desktop, Discoverer Plus and Discoverer Viewer. Folder items include axis items, data point items, joins, conditions, and calculated items. Discoverer Administrator displays folders and items that might be hidden to end users.

For more information, see:

["What is the Workarea?"](#)

["About the tabs in the Workarea window"](#)

In the Data tab you can move items from one folder to another. You can also create, edit and delete folders, complex folders, items, conditions, joins and delete business areas.

Use the Properties dialog to examine and modify many attribute values as well as view the types and names of dependents for business areas, folders and items.

Workarea: Hierarchies tab

Use the Hierarchies tab to view the hierarchies in the EUL grouped by business area. Discoverer end users can use hierarchies in worksheets to drill down through hierarchically organized items.

For more information, see:

["What are hierarchies?"](#)

["About the tabs in the Workarea window"](#)

Show

Use this drop down list to change which types of hierarchy are displayed. You can choose to view user or system defined hierarchies, and choose to display the different types of hierarchies (e.g. item, date or all hierarchies).

Notes

- You can review the contents and the organization of each hierarchy and view the hierarchy templates provided by Discoverer Administrator.

Workarea: Item Classes tab

Use the Item, Classes tab to view item classes in the EUL grouped by business area.

For more information, see:

["Maintaining items and item classes"](#)

Show

Use this drop down list to change which types of item class are displayed. You can choose to view user or system defined classes, and choose to display the different types of class (e.g. list of values or alternative sort).

Notes

- You can review the list of values assigned to an item class, in each item class folder. When you open a list of values folder Discoverer displays each unique occurrence of data values as a set. This display clearly shows which items use a particular item class.

Workarea: Summaries tab

Use the Summaries tab to manage summary folders in the EUL grouped by business area. From here you can:

- create new summary folders
- edit summary folders
- refresh summary folders
- delete summary folders
- examine summary folders properties
- validate summary folders

For more information, see:

["What is the Workarea?"](#)

["About folders and summary folders in Discoverer"](#)

Summaries tab

Use the list to select a summary folder.

To see a list of menu options available for a summary folder, right click the cube icon that represents the summary folder. Discoverer represents summary folders as follows:

Summary folder	How the summary folder is represented in Discoverer
valid summary folder.	a cube icon with a clock face
valid external summary folder	a cube icon
broken summary folder	a cube icon with a yellow warning triangle

Notes

- If Discoverer displays the message 'This user requires Create Any Materialized View privilege' when you try to refresh a summary folder, you do not have the necessary privileges to refresh summary folders. To grant the necessary privileges, follow these steps:
 - Log out of Discoverer Administrator.

- Start Oracle SQL*Plus, and connect using the database administrator user name and password.
- Run the following SQL script:

```
<ORACLE HOME>\discoverer\util\eulasm.sql
```
- Restart Discoverer Administrator
- A summary folder is considered broken when Discoverer cannot use the materialized view, summary table or detail tables. To find out more about why a summary folder is broken, use the View | Validate Summaries menu option. You might want to edit a broken summary folder to investigate its composition and remove any broken folders.

Using SQL files and trace files

Using SQL files and trace files

This chapter provides reference information about files that are used by Discoverer and includes the following topics:

- ["List of SQL files supplied with Discoverer"](#)
- ["Working with Oracle Support to resolve Discoverer issues"](#)
- ["How to create trace files to diagnose Discoverer problems"](#)

List of SQL files supplied with Discoverer

A number of SQL files are installed with Oracle Discoverer Administrator and enable you to carry out specific database configuration tasks. The table below lists the SQL files and describes their functions.

The following files are located in the <ORACLE_HOME>\discoverer\util directory unless otherwise stated:

File name	Description
batchusr.sql	Sets up a scheduled workbook results schema (for more information, see "How to specify the owner of the tables containing scheduled workbooks results").
dbmsjob.sql	The interface for the Oracle DBMS JOB queue (for more information, see "How to confirm that the DBMS_JOB package is installed"). The dbmsjob.sql file is not installed with the database in the <ORACLE_HOME>\rdbms\admin directory.
eul31del.sql	Removes all Discoverer version 3.1 EUL objects that are no longer required with this version.

File name	Description
eul4.sql	Creates the functions required by the eul4.eex business area and workbooks (for more information, see "How to install the standard EUL status workbooks").
eul4del.sql	Clears all 4.1 EUL objects (for more information, see "Upgrade step 5: Remove the Release 4.1 EULs").
eul5.sql	Creates the functions required by the eul5.eex business area and its workbooks (for more information, see "How to install the standard EUL status workbooks").
eul5_apps.sql	Creates the functions required by the eul5.eex business area and its workbooks when using an Oracle Applications EUL (for more information, see "How to install Oracle Applications EUL status workbooks"). Note: You use this script only with Oracle Applications EULs.
eul5_id.sql	Changes the reference number of an EUL. Use this script when you have used the database export and import utilities to copy an EUL and you want to: <ul style="list-style-type: none"> ▪ modify objects in both the original EUL and the new EUL ▪ having modified objects in both EULs, you then want to copy objects between the two EULs using the Discoverer Export Wizard and Import Wizard (or the Discoverer /export and /import commands) Run the eul5_id.sql script to give a new reference number to the new EUL and thereby prevent any uniqueness conflicts in the above scenario (for more information, see "How to import an EUL using the standard database import utility").
eulasm.sql	Grants the privileges required for summary folder management (and ASM) in Discoverer Administrator version 4.1 and later (for more information, see "How to use SQL*Plus and the eulasm.sql script to grant the privileges required to create summary folders").
eulgwreg.sql	Contains a template EUL gateway registration script that you use when setting up EUL gateway metadata. For more information, see egwspec.doc and eulgatew.doc located in the <ORACLE_HOME>\discoverer\kits directory.
eulgwtbl.sql	Contains the template CREATE TABLE SQL statements that you use when setting up EUL gateway metadata. For more information, see egwspec.doc and eulgatew.doc located in the <ORACLE_HOME>\discoverer\kits directory.

File name	Description
eulgwvue.sql	<p>Contains the template CREATE VIEW SQL statements that you use when setting up EUL gateway metadata.</p> <p>Note: If you execute this script without modification, it will not create a valid gateway. You must modify the SQL statement to correctly map the view columns to the metadata, in order to transfer information through the gateway.</p> <p>For more information, see egwspec.doc and eulgatew.doc located in the <ORACLE_HOME>\discoverer\kits directory.</p>
eulsown.sql	<p>Modifies summary folder ownership information that you might need if you export the EUL using the database export utility and import it into a different database user (for more information, see "How to export an EUL using the standard database export utility"). This script prompts you for the owner name of the summary folders in the source EUL, and for the owner name of the new summary folder in the target EUL (for more information, see "How to import an EUL using the standard database import utility").</p>
eulstdel.sql	<p>Deletes query prediction statistics older than a specified age (for more information, see "How to delete old query prediction statistics").</p>
eulsuqpp.sql	<p>Grants the necessary database privileges to enable query performance prediction (QPP) (for more information, see "How to use query prediction with secure views").</p>
gwdrop.sql	<p>Enables you to delete an EUL gateway.</p> <p>For more information, see egwspec.doc and eulgatew.doc located in the <ORACLE_HOME>\discoverer\kits directory.</p>
gwgrant.sql	<p>Enables you to grant access to EUL gateways.</p> <p>For more information, see egwspec.doc and eulgatew.doc located in the <ORACLE_HOME>\discoverer\kits directory.</p>
lineage.sql	<p>You must run this script before using the lineage.eex business area and its workbook (for more information, see "Using Discoverer with Oracle Warehouse Builder").</p>

Working with Oracle Support to resolve Discoverer issues

If you work with Oracle Support to resolve a Discoverer issue, you will typically be asked for the following information:

- the version of Discoverer
- the Discoverer tool that was being used when the problem occurred (i.e. Discoverer Administrator, Discoverer Plus, Discoverer Viewer, Discoverer Desktop)

- exact details of the actions the user performed in Discoverer prior to the problem occurring
- what the Discoverer user saw on the screen when the problem occurred

In addition, Oracle Support might ask you to provide a trace file (for more information, see ["How to create trace files to diagnose Discoverer problems"](#)).

How to create trace files to diagnose Discoverer problems

Sometimes you might encounter a problem with Discoverer and be unable to identify the cause of the problem (e.g. a generic error message might not provide sufficient information). To provide more information about Discoverer problems, you can generate two types of trace file:

- an EUL trace file, which records low-level interactions between Discoverer and the EUL
- a server trace file, which records the SQL statements sent to the database server

You can either use trace files yourself to diagnose the cause of the problem, or use trace files when working with Oracle Support.

To create an EUL trace file and/or a server trace file containing information relevant to the problem you are trying to resolve:

1. Start with Discoverer functioning as normal.
2. Specify the trace file you want to create, as follows:
 - to create an EUL trace file, use the DebugFile Discoverer registry setting to specify the name of the file to generate
 - to create a server trace file, set the SqlTrace Discoverer registry setting to 1

For more information about Discoverer registry settings, see ["What are Discoverer registry settings?"](#).

3. If you want to create an EUL trace file, use the DiagLevel Discoverer registry key to specify the level of diagnostic information written to the file.
4. Perform the actions in Discoverer that cause the problem.
5. Restore the DebugFile and/or SqlTrace Discoverer registry settings to their default values to prevent unnecessary information being written to the trace files.

Glossary

A

access rights and privileges

Specific functionality such as update and delete privileges which are granted to a specific user ID by a database administrator, or by the user ID which "owns" the tables for which the authority is being granted.

aggregate

Summarized data. For example, unit sales of a particular product could be aggregated by day, month, quarter and yearly sales.

alignment

The way in which data is positioned in a field. It can be positioned to the left, right, center, flush/left, flush/right, or flush/center of the defined width of a field.

analytic functions

Analytic functions compute an aggregate value based on a group of rows. The group of rows is called a window and is defined by the analytic clause. Analytic functions differ from aggregate functions in that they return one value for each row in the group. For example, if you create a ranking function, you create a rank value for each row in the group.

For more information about Oracle9i functions, refer to *Oracle9i SQL Reference* or *Oracle9i Data Warehousing Guide*.

automated summary management (ASM)

A Discoverer feature to simplify the process of summary creation and maintenance. ASM enables you to set a range of input parameters known as a summary policy for Discoverer to operate within. Discoverer will automatically create and maintain the best set of summaries according to the summary policy.

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*.

B

business area

A conceptual grouping of tables and/or views that apply to user's specific data requirements. For example, an accounting department might have an accounting Business Area that represents data about budgets and finance, while project leaders in an engineering department would have a business area specifically for projects requiring budget information.

Although some of the items might be the same, the exact combination of tables and views for each department might be different. A Business Area is represented as a file cabinet in Discoverer. This can be opened to display folders, and all the items in those folders.

C

cache (memory)

A temporary storage place for database data that is currently being accessed or changed by users, or for data that Oracle Server requires to support users. The terms are often used interchangeably.

calculation

A mathematical formula performed on one or more items. Oracle Discoverer enables you to build complex calculations.

clipboard

A memory buffer. An object remains on the Clipboard until you cut or copy another object, or until you quit the application.

collapse

To remove all levels of related items from below a selected item. In effect, to undo a drill-down. See: *drill down*.

color palette

Contains all the colors available to the windowing system, the drawing surface, or a window and its views.

column

A vertical space in a database table that represents a particular domain of data. A column has a column name (e.g., ENAME) and a specific data type (e.g., CHAR). For example, in a table of employee information, all of the employees' names would constitute one column. A record group column represents a database column.

In Discoverer, the particular type of data is displayed vertically in your worksheet.

command line

An operating-system command line. Most Oracle products can be invoked from a command line using a number of executable arguments.

complex folder

A folder created in Discoverer Administrator that contains items from more than one folder (or database table).

condition

A filter created on an item to restrict which values return. It contains a column and some qualifying data used to specify the volume of data. Conditions created in Discoverer Administrator can be optional or mandatory as business conditions dictate.

Conditions can also be created while defining a query in Discoverer Plus. For example, if you request all cities in the East Region you are using a condition (show East Region only) to limit the cities you get in your result set.

connect

To log on to a database. You must connect if you want to create or modify queries or access an application stored in a database.

connect string

The set of parameters, including a protocol, that SQL*Net uses to connect to a specific Oracle instance on the network.

copy

To store a replica of a selected object on the Clipboard, so that it might be pasted elsewhere in an editor if desired.

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*.

cursor

A small icon representing the position of the mouse. The shape of the cursor varies, depending on the selected tool.

cut

To delete one or more objects and store them in the Clipboard, so that they can be pasted elsewhere in an editor, if desired.

D**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, data point*.

data model

A relational model that defines what data should be fetched from the database, what values should be computed, and how data should be ordered in a report. Report Builder objects that define the data model are queries, groups, columns, parameters, and links.

data point

The value of a data item, as displayed in a cell of a sheet. A data point reflects the relationship between intersecting axis items in a crosstab. See: *data item*.

data type

A standard form of data. Some common Oracle data types are CHAR, VARCHAR2, DATE, NUMBER, LONG, RAW, and LONG RAW.

database

A set of dictionary tables and user tables that are treated as a unit.

DATE

An Oracle Server data type. A date column can contain a date and time between January 1, 4712 BC and December 31, 4712 AD.

date hierarchy

Date hierarchies possess an inherent structure based on year, quarter, month, week, day, hour, minute, and second. The Discoverer manager uses date hierarchy templates to define many common formats for date hierarchies. You can create customized date hierarchies or use the default date hierarchy.

date hierarchy template

A predefined hierarchy of date levels including display format. Date hierarchy templates are applied to a date item to create a date hierarchy specific for that date item.

For example, apply a generic date hierarchy template of Year (YYYY), Month (Mon-YY), Day (DD-Mon-YY) to 'sales_date' to allow users to drill down from Year to month level and to Day level (from 1996 to June, 1996 to 2-June-96).

Use the date hierarchy template to define which time/date levels and which display format to use.

default

A value supplied by the system when a user does not specify a required command parameter or attribute.

detail to master join

A detail-to-master join icon represents a many-to-one relationship between two items in different folders. The foreign key is on left (Detail), the primary key is on right (Master). See: *master to detail join*, *join*.

dialog box

A partial screen or window that prompts you to enter information necessary to complete an operation.

disabled

An interface element state that means a menu item, button, etc., cannot be used in the current context; i.e., it does not respond to keyboard or mouse input.

drag

Press and hold down a mouse button while you slide the mouse pointer to a particular location in a window.

drill

To expand an item to include items related to it. Oracle Discoverer might requery 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 requery 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 requery the database. See: *drill, drill down, collapse*.

duplicate

An option that allows you to copy objects directly on the layout without affecting the contents of the Clipboard.

E**enabled**

An interface element state that means that a menu item, button, etc., can be used in the current context, that is, it responds to keyboard or cursor/mouse input.

End User Layer (EUL)

A number of database tables and views that reside (conceptually) between the database dictionary/table definitions and client applications, such as Discoverer Plus. The End User Layer is a “meta-layer” that shields end users from the complexity of the database by providing meaningful, business-like terminology for database objects.

The EUL controls several elements such as hierarchy templates, formatting information, summary table management and aggregate information. The EUL also controls the SQL generated to extract the information from the database.

environment

The user's computer-based workplace, including the tools typically used and their configurations. For Project Builder, this refers to the subset of tools that are used to complete various tasks related to developing Developer/2000 applications.

equijoin

A join of two columns with the equal operator, dictating that only those rows that have identical data in the defined columns on opposite sides of the operator will be joined.

exception

Data in your result set which falls outside of a set of criteria set by you.

execute

See *run*.

export

To store a copy of an object, module, selected text or image to a file or database. In Project Builder, the process of writing out a file containing project, type, action, and/or macro definitions in a portable format for distribution to others who may work on heterogeneous platforms. See also: *export file*, *import*.

export file

A shareable, portable file created by exporting a project.

external query

An ANSI-standard SQL SELECT statement that can be referenced by other Oracle products.

F

field

An interface element in which you enter, edit, or delete data.

foreign key

Key that links a row or column of data in a table to a table in another business area.
See: *primary key*.

focus

The state of an entity that is able to respond to input from the user or the client. If an entity has the keyboard focus, it can receive events when the user presses a key. If a drawn view has the drawing focus, it can respond to client routines that affect drawing.

folders

A representation of a database table in the EUL. Presenting tables as folders is another way to shield the end user from the complexities of the database.

G

grant

To give a user access to a module. Only a module's creator can grant its access to other users.

GUI

Acronym for graphical user interface. The use of pictures rather than just words to represent the input and output of a program. Programs with GUIs run under a windowing system (such as X Windows, Microsoft Windows, Apple Macintosh, and so on). GUI programs display icons, buttons, and so on, in windows on the screen; users control the GUI programs mainly by moving a pointer on the screen (typically controlled by a mouse). Also known as a bitmapped interface.

H

hierarchy

Natural relationships among items, defined in Discoverer Administrator and stored in the End User Layer. Hierarchies enable users to drill up and down through the data to see different levels of detail. There are two types of hierarchies: Item and Date. Use the hierarchy wizard to create new hierarchies, and to edit existing hierarchies.

hierarchy wizard

A predefined set of steps in Discoverer Administrator that ask the user for the information and choices needed to create a hierarchy for use in Discoverer Plus.

HTML

Acronym for Hypertext Markup Language. A tag-based ASCII language used to specify the content and hypertext links to other documents on WWW servers on the Internet. End users with Web browsers view HTML documents and follow links to display other documents.

HTTP

Acronym for Hypertext Transfer Protocol. The protocol used to carry WWW traffic between a WWW browser computer and the WWW server being accessed.

hyperdrill

A way of establishing a link across the system to allow users to drill to details in another worksheet. Requires an existing join between the items or categories in each worksheet.

hyperlink

A reference (link) from some point in one hypertext document to (some point in) another document or another place in the same document. A Web browser usually displays a hyperlink in some distinguishing way (in a different color, font or style). When users activate hyperlinks (by clicking on them with a mouse) the browser displays the target of the link.

hypertext

A collection of documents containing cross-references which, with the aid of a browser, (such as a Web browser or Acrobat Reader, allow readers to move easily from one document to another.

I

icon

A graphic representation of a window or tool.

identifier

Identifiers are unique names that Discoverer uses to identify workbooks. When matching objects common to different EULs, Discoverer uses identifiers to locate objects in different EULs that refer to the same business object.

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 object.

image

A bitmapped object that can be stored and loaded into an application. The client cannot modify an imported image.

import

To read a module from the file system or database, and incorporate it into an application.

independent data

A piece of data that does not depend on other data for its value. For example, an employee's name may have the value *Jones*, which is independent of the values of other employee's names or associated data. Also called category data.

index

An optional structure associated with a table that is used by Oracle Server to locate rows of the table quickly, and (optionally) to guarantee that every row is unique.

internet

A worldwide TCP/IP-based network of computers.

IP (Internet Protocol) Address

A four-part number with no more than three digits in each part that uniquely identifies a computer on the Internet.

item classes

A grouping of items that database values. An item class is used to define a list of values that may be used by more than one item, an alternative sort order for these items, and/or to define a summary-to-detail capability between items. For example, an item called Product may contain a description of products, and may be part of the Product folder. The same item, Product, may also be required in the Sales Revenue folder. To have both items use the same list of values, you create one item class which defines the values, and apply it to both items. Thus, you only have to define the list of values once. If you did not create an item class, you would have to define a list of values for Product in the Product folder, and for Product in the Sales Revenue folder.

item class wizard

A predefined set of steps in Discoverer Administrator that ask the user for the information and choices needed to create an item class.

item hierarchy

Used to define the hierarchical relationship between items to allow end users to drill down to different levels of detail. For example from Country to Region to State.

items

A representation of database table's column in the EUL. Presenting columns as items allows the Discoverer manager to make formatting changes, name changes and other similar changes enabling the user to clearly read the data. Items are stored in folders and can be created, deleted, and moved among different folders.

J

JInitiator

A software plug-in that ensures a consistent Java Virtual Machine (i.e. the software environment used by Discoverer) between different releases of a browser.

join

A logical pairing of tables in a database, based on matching data in a specific column(s). Creating joins in Discoverer Administrator is critical for identifying the folders available to the user in Discoverer Plus. When the user selects an item or folder to create a worksheet, only those folders having joins with the selected folder are available. Thus, if a join does not exist between two folders, neither the unselected folder nor its items are available for the worksheet.

Joins are derived from matching columns or primary or foreign keys in the database.

justification

See *alignment*.

K

keyword

1. Part of a command line syntax that must be supplied with a corresponding argument. 2. A required part of a PL/SQL construct.

L

label

Text identifying the values or meaning of an application's visual objects.

list of values

A set of the unique values that exist in an item. The values are from the items found in the database column.

For example, if a database contained 4 occurrences of widgets, 28 occurrences of bolts, 34 occurrences of fan belts, 90 occurrences of gaskets and 49 occurrences of brackets, list of values would produce the following list of five distinct values: [widget, bolt, fan belt, gasket, bracket]. Lists of values are used when creating and assigning conditions. The list of values is generated automatically at run time.

load wizard

A predefined set of steps in Discoverer Administrator that ask the user for the information and choices needed load tables into the End User Layer and create a new business area.

local database

1. The database on the computer running the application. 2. The database to which an application is connected. This database parses and executes all SQL statements generated by the application.

M

master folder

Used in a join, the master folder identifies the table which has a one-to-many relationship with the detail folder. For example, for each video title (identified by a row with a unique key) in a Video Product folder, there may be many entries (rows) in the Sales Details folder for each time a customer has rented the video.

master to detail join

A master-to-detail join icon represents a one-to-many relationship between two items in different folders. The primary key is on left (Master), the foreign key is on right (Detail).

Create joins while using the Load Wizard to create a business area or by choosing Join from the Insert menu. See: *detail to master join, join*.

materialized view

A materialized view is a summary mechanism used by Oracle 8.1.7 (or later) Enterprise Edition databases. materialized views pre-compute and store aggregated data for use in SQL queries.

megabyte (Mb)

A unit of memory equal to 1,048,576 bytes (1024 x 1024). Often rounded to one million bytes.

message box

A modal window that notifies you of a condition that occurred because of your last action. You must respond to a message box.

metadata

Data about data. The data contained in the EUL is metadata because it is information describing the data in the actual database tables. Creating metadata allows the Discoverer manager to translate the database terminology into business terminology.

modal window

A window that elicits a response from the operator before the application can continue.

N**NOCACHE**

A data type indicating that the data will be fetched when the page on which it appears is formatted (instead of fetched and cached until formatted).

non-caching column

A report column that references a database column of data type NOCACHE.

NULL value

The absence of a value.

O**object**

An item that can be placed on the layout. The following are examples of objects: rectangle, line, ellipse, arc, polygon, polyline, rounded rectangle, freehand, chart, text, symbol, and text field.

ODBC

Acronym for Open Database Connectivity. A standard for accessing different database systems. An application can submit statements to ODBC using the ODBC flavor of SQL. ODBC then translates these to whatever flavor the database understands. Using the Oracle Open Client Adapter (OCA), an application can access different database management systems in one consistent manner. This allows an application developer to develop, compile, and ship an application without targeting a specific DBMS.

OLE

Object Linking and Embedding.

OLE container

An application that can store and display OLE objects.

OLE Server

An application that creates OLE objects.

one-to-many relationship

A relationship where there is one uniquely identified row in one table relating to one or more rows in another table. The relationship is based on the unique key found in the first table. For example, for each video title (identified by a row with a unique key) in a Video Product table, there may be many entries (rows) in the Sales Details table for each time a customer has rented the video.

one-to-one relationship

A relationship where there is one and only one match for a unique row in two tables.

For example, for each video title (identified by a row with a unique key) in a Video Product table, there is one and only one row in the Video Details table that contains the description. Since there is only one description for each product, it could be located directly in the Video Product table; however it could be placed in another table for other processing reasons. In the latter case, the two rows would be uniquely identified by a common key joining them together.

ORACLE_HOME

An environment variable that indicates the root directory of Oracle products.

Oracle Designer

An Oracle Corporation tool for system analysis and designing, generating, and maintaining applications.

Oracle Designer uses an enhanced Oracle dictionary for application system designs and model information.

orphan folder

A folder which does not exist in any business area. An orphan folder cannot be viewed in the work area because it is not located inside any business area; therefore it is unusable. A folder can only be created (and saved in the End User Layer) inside a business area and potentially used repetitively in several business areas. However, if it is subsequently removed from its last business area without being deleted from the End User Layer, it becomes an "orphan folder".

You can view orphaned folders by choosing Manage | Folders from the Tools menu.

own

A term defining proprietorship of a specific object in Discoverer. For example, a user owns an EUL if its tables reside in the user's database account. A user may have permission to access the tables in another user's account, but the permitted user does not own the EUL.

P

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.

parameter

1. A PL/SQL construct used to pass information to a subprogram. For example, in the subprogram call MYPROC (x),x is a parameter.

partially restricted tables

Tables you own and have granted access to for other user IDs. Or, tables you don't own but their owner has granted you access.

paste

To place the contents of the Clipboard (cut or copied objects) at the current cursor location.

pattern

A graphical property you can apply to the edge or fill of most objects.

PDF

Acronym for Portable Document Format. A file format (native for Adobe Acrobat) for representing documents in a manner that is independent of the original application software, hardware, and operating system used to create the documents. A PDF file can describe documents containing any combination of text, graphics, and images in a device-independent and resolution independent format.

physical page

The size of a page that is output by your printer.

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.

PL/SQL

Oracle's proprietary extension to the SQL language. Adds procedural and other constructs to SQL that make it suitable for writing applications.

pop-up list

A list that pops up when the user performs a particular action.

port

A number that TCP uses to route transmitted data to and from a particular program.

pre-defined action

An action shipped with Project Builder and automatically available to the user via a menu item and/or a toolbar button. Pre-defined actions include Build, Deliver, and several source control options. When a pre-defined action is defined for a supported file type, the action is invoked for any selected item of that type when the user calls the action from Project Builder. See also: *action, user-defined action*.

preference

A setting that affects the behavior of the application's interface.

primary key

A column in a database table whose members consist of unique values that can be used to identify a row in a table.

private End User Layer

An End User layer only available to specific user IDs. Access is explicitly granted by the owner of the End User Layer.

A database can have one or more private End User Layers.

private tables

Tables in a database accessible only by those user IDs granted access by the user ID who "owns" the table. A user ID "owns" a table if that user ID has created the table.

properties

A characteristic of an object that determines the behavior or appearance of that object.

public tables

Tables in a database accessible by all user IDs.

Q**query**

1. 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.

2. A SQL SELECT statement that specifies the data you wish to retrieve from one or more tables or views of a database.

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.

quit

An option that terminates the current session and returns the user to the operating system. On some systems, Quit is Exit.

R

radio button

A control (similar to a check box), appearing in sets of two or more, only one of which may be either "on" or "off" at any given time.

radio group

A set of two or more radio buttons, only one of which may be either "on" or "off" at any given time.

RDBMS

Acronym for Relational Database Management System. A database that allows the definition of data structures, storage and retrieval operations, and integrity constraints. In such a database, data and relations between them are organized in tables.

record

One row fetched by a SQL SELECT statement.

remote database

A database on a computer other than the local database. Usually a computer on the same network, but at a different node (i.e., a database that you use through a database link).

role

A set of privileges. A role is assigned to a user ID to grant all of the privileges defined in that role. A role is useful for a DBA assigning the same privileges to large numbers of people.

For example, the database administrator for a staff of airline reservation employees defines the role “reservationist” containing all of the necessary privileges for a reservationist. Then the DBA assigns every reservationist that role (reservationist), instead of having to define all of the privileges for each reservationist.

row

One set of field values in a table; for example, the fields representing one employee in the example table EMP.

run

To execute a runtime version of an application or program unit.

S**scheduled workbook**

A workbook that has been programmed to run automatically at a scheduled date, time, and frequency. You can schedule a workbook by choosing File | Schedule.

schema

A collection of related database objects, usually grouped by database user ID. Schema objects includes tables, views, sequences, stored program units, synonyms, indexes, clusters, and database links.

scope

The level at, or range in which, an object operates. For Project Builder: 1. Describes the range of files affected by Compile and Compile All commands invoked against compilable project items. 2. Describes the range of files influenced by inheritable definitions.

SELECT statement

A SQL statement that specifies which rows and columns to fetch from one or more tables or views.

send

In Discoverer you can mail a workbook (or part of a workbook) in an email. The data you send can be in the text of the mail message or an attachment. In Discoverer Plus, choose File | Send to send a workbook.

session

The period between invoking and quitting the executable.

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.

SQL script

A file containing SQL statements that you can run to perform database administration quickly and easily. Several SQL scripts are shipped with Oracle products.

SQL statement

A SQL instruction to Oracle. A SELECT statement is one type of SQL statement.

statement

A PL/SQL construct used for conditional, iterative, and sequential control, and for error handling. A semi-colon (;) must terminate every PL/SQL statement.

summary rewrite

The process that Discoverer Plus uses to rewrite the SQL for a query to use a summary table or materialized view rather than the detail data.

summary folder

The folder for storing information about summary tables, and the EUL items that can use them. Summary folders improve performance by directing queries to run against the summary tables' pre-aggregated and pre-joined data which, nevertheless, still satisfies the query requests. The process is automatic from the user's view—that is, to the user it isn't apparent that the query is being handled by the summary folder, instead of the base data tables. The net result is quick response times for queries and accurate results.

summary table

Results from a query, listing information in table format.

summary wizard

A predefined set of steps in Discoverer Administrator that prompt the user for the information and choices needed to create a summary folder that will be used when end user queries are rewritten to use them.

syntax

The orderly system by which commands, qualifiers, and parameters are combined to form valid command strings.

T

table

1. A named collection of related information, stored in a relational database or server, in a two-dimensional grid that is made up of rows and columns.
2. 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: *crossstab*.

tabular

A default layout displaying labels at the top of the page and rows of data underneath the labels.

task list

A window in Discoverer Administrator that lists each task for creating a comprehensive business area in logical order. It is helpful in keeping track of the tasks to complete. Click on a task to invoke its respective wizard to help you complete the task.

TCP

Acronym for Transmission Control Protocol. The underlying communication protocol for exchanging HTTP requests between clients and Web servers.

tear-off menu

A submenu that the user can remove from its source using a mouse or other pointing device and drag to another part of the display screen.

text item

In Form Builder, an item that displays a character string value.

title bar

The horizontal area at the top of a window that displays the name of the application or interface element in that window.

toggle

To turn a setting alternately on or off. For example, you can hide or show the Toolbar.

tool

An iconic button used to create and manipulate objects in an application.

toolbar

Collection of iconic buttons that perform product commands. Usually aligned horizontally along the top, or vertically down the side of a window.

tool palette

A collection of tools

total

The result of a calculation that summarizes data in a sheet. Examples of totals are minimum, maximum, average, and sum.

trailer

A optional report region that can contain closing material for the report, including text, graphics, data, and computations. The report trailer appears last, following the header and body.

transaction

A sequence of SQL statements treated as a single unit.

trigger

A PL/SQL procedure that is executed, or "fired," upon a specific event.

type

A description of a file type, such as a form, a document, etc., containing such information as type name and description. Each description applies to a single file type. In addition, there are four meta-types: "updtext", which applies to all text files, "updproj" which applies to all project files, "updlink", which applies to all project links, and "all" which applies to any file type. Types are the foundation for defining actions and macros.

U**user exit**

A way in which to pass control (and possibly arguments) from Developer/2000 to another Oracle product or 3GL, and then return control (and possibly arguments) back to Developer/2000.

user ID

a unique character string used to access a database. A user ID always has an associated password. When logging onto an Oracle database, a person must have an authorized user ID and password.

V**variable**

A named object that can be assigned a value and whose assigned value may change over time.

W

wildcard

A character used to mean 'any one character' or 'a contiguous set of characters' within a word or phrase.

window

A rectangular area of the desktop that contains an application. Each window has an area where you can interact with the application. Windows can be opened, resized, moved, reduced to an icon, or enlarged to fill the entire desktop.

workarea

A window in Discoverer Administrator which is the view into the End User Layer. Use the Workarea window to work with each business areas in the End User Layer. It is where you can create new business areas and folders, move items from one folder to another, and create and edit items. Essentially, everything you do that affects the End User Layer is done in the Workarea.

workbook

A collection of worksheets in Discoverer Plus. Workbooks are essentially documents containing query definitions, which can be stored in database tables, network file server and shared with other Discoverer Plus users over a network. They can also be stored on your PC.

worksheet

The way Discoverer displays the results of your query. The Worksheet also contains the query to be executed against the End User Layer. Multiple worksheets are stored in a Workbook.

Z

zoom

To expand an object to allow more room for editing the contents of the field.

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