SERENA®

DIMENSIONS® RM 2010 R1

Windows Clients User's Guide

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Preface

This document describes how to use the desktop clients for Serena® Dimensions® RM, a comprehensive requirements management package that allows development teams to capture, engineer, and manage requirements throughout the entire product lifecycle.

To learn about the RM Browser Web client, please see the *RM Browser User's Guide*.

Objective

The purpose of this book is to describe how to use Dimensions RM after the product is installed.

Audience

This document is intended for members of project teams who use Dimensions RM to create, manage, and track requirements during the lifecycle of a project.

Chapter 1

Overview

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What is Dimensions RM?

Serena® Dimensions® RM is the Serena Software solution for requirements management. Dimensions RM delivers an enterprise-wide solution based on the Oracle® database management system. Dimensions RM makes it easy for you to capture and organize requirements data by providing the tools you need to create, manage, and track such data throughout a project's lifecycle.

What is Requirements Management?

Requirements management is the process by which an engineering project records and maintains the official, binding description of what it plans to achieve.

The requirements management process includes the following activities:

- Requirement development
- Reporting and traceability
- Change management
- Communication

Requirement Development

One of the first steps in every project is the specification of requirements. Tracking these requirements across different organizations and understanding the impact that various requirements have on cost, schedule, and time-to-market can have a dramatic effect on project success.

Dimensions RM stores requirements in a database. The requirements for a project can come from various sources, such as customers, management, Marketing, Quality Assurance (QA), Support, and field personnel. The requirements can be entered directly into Dimensions RM, or imported from a Microsoft® Word document, plain text document, comma-delimited (.csv) file, or XML document (.xml) file. You synchronize Word documents or text documents with the database as requirements evolve.

You can also import requirements from other tools, such as Serena® Business Mashups (formerly known as TeamTrack), IBM® Rational® Software Modeler, HP Quality Center, and Microsoft® Project. For more information about the integration of Dimensions RM with these products, see the guides listed in the "Preface" on page 9.

Reporting and Traceability

With traceability, users can evaluate the effects of changes in requirements and identify potential problems. Traceability involves making explicit links between requirements and other entities.

For example, suppose you link marketing requirements to test cases. You then run a report on this relationship. The report shows marketing requirements on the left side of the report, and any associated test cases on the right side of the report. This format allows you to easily determine which marketing requirements lack associated test cases.

Another type of traceability report you can create in RM Browser shows the requirements in the relationship in a tree-like structure.

Change Management

Requirements change over time. The change management activity within a requirements management process involves preventing unauthorized changes, gathering the information necessary to make informed decisions about which changes to allow, and making those changes in a systematic way.

In Dimensions RM, you can submit a change request against a specific requirement. If a user has the appropriate permissions, he or she can accept or reject the change request.

Communication

Dimensions RM provides several ways to facilitate communication among team members.

- **Comments**—You can participate in discussion threads by adding comments to requirements. This functionality allows you to communicate issues and discuss their resolution without directly changing the requirement.

  For information about adding comments in RM Concept, see "Adding and Reviewing Comments" on page 101. For information about adding comments in RM Word, see "Adding Comments" on page 242.

- **Polls**—Users with the appropriate permissions can start a poll on a requirement. The poll typically either solicits feedback on its content or asks whether a change request against the requirement should be accepted or rejected. If the e-mail service is running, and the user accounts include e-mail addresses, the poll participants receive an e-mail message that notifies them about the poll and provides a direct link to the RM Browser page from which they vote.

- **E-Mail Notification**—Users or administrators can set up rules that specify that an e-mail notification be sent when a particular event occurs. For example, you could set up a rule that causes an e-mail notification to be sent to you when any requirement you created changes. For more information on e-mail notification, see "E-Mail Notification" on page 128.

Tools

The following sections briefly describe the Dimensions RM tools. The Dimensions RM tools are the various interfaces you use to perform specific tasks.

RM Browser

RM Browser is the primary user interface. It provides Web access to a core set of Dimensions RM functions. Using RM Browser, both remote and local users can use a Web browser to edit requirements, submit and review change requests, run reports, create filters and scripts, participate in discussions, run polls, create collections, move requirements into different categories, associate collections to Dimensions CM projects, and so on. RM Browser requires no installation.

The following sections describe the four views from which you can work in RM Browser. For detailed information about using RM Browser, see the *RM Browser User's Guide*.

Home Page

You can customize your Home page to include up to seven expandable sections. Each section contains the results of a query. Your Home page lets you quickly view and modify requirements that you refer to on a regular basis.

Requirements View

Requirements View is organized according to defined categories, and lets you run filters and scripts, create new queries, and view and modify requirements that are returned.

Documents View

Documents View provides a document-like presentation of requirements, with a table of contents, chapters, and subchapters. Documents View lets you easily add, delete, move, and edit documents, chapters, and requirements, and publish them as Microsoft® Word documents. Word documents that you imported through the RM Import tool are displayed in and can be modified in Documents View.

Note the following:

- Word uses unique, proprietary styles and formatting; therefore, the styles and formatting of the Word document (for example, some lists, bullets, and fonts) are not necessarily preserved in Documents View. However, RM Import always attempts to import the text to prevent data loss.
- You cannot import the changes you make in Documents View back to the original Word document. Roundtripping between Dimensions RM and Word is not supported.
- Documents in Documents View are **NOT** the same as the Word documents from which they were imported. Dimensions RM does not store the Word document; it parses the data into classes (requirements and so on) so the data is available to the entire project.

Traceability View

Traceability is a way to analyze the linkages between requirements. Traceability View provides a way to select the relationships you want to trace, browse through the requirements that are part of the relationships, and then print traceability reports that display the information in a visual format that is easy to analyze.

RM Explorer

NOTE RM Browser provides the functionality that RM Explorer provides. RM Browser is the preferred tool to use.

RM Explorer provides an integrated Windows® Explorer-like view of a project, so you can see and organize an entire project at once, not just one element at a time. RM Explorer provides a single interface for launching other Dimensions RM tools. You do not have to log in to the other tools from RM Explorer; however, if you launch certain tools from outside of RM Explorer, you have to log in to each one individually.

You can use RM Explorer to manage and organize all the elements and source files of your requirements project. RM Explorer lets you see the hierarchy of classes, collections, documents, files, and folders in your project. You can import and update data with RM Explorer, and view the attributes of all the components of your project. You can also use RM Explorer to create custom views and filters.

For detailed information about using RM Explorer, see "RM Explorer" on page 141.

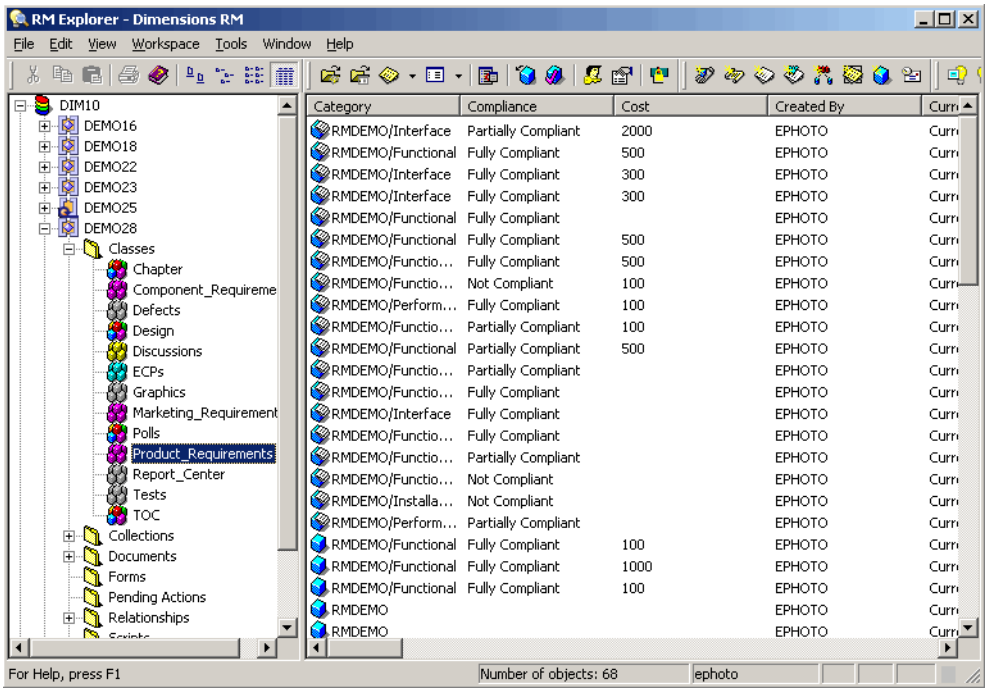


Figure 1-1. RM Explorer

RM Concept

NOTE RM Browser provides the functionality that RM Concept provides. RM Browser is the preferred tool to use.

RM Concept tracks the requirements engineering and change processes. With RM Concept, you can capture requirements both manually and automatically. You can also customize views for reporting and information gathering.

To support change management, RM Concept manages requirements, reports changes, generates customized reports, and compares versions. Multiple instances of RM Concept can be run simultaneously. RM Concept provides locking at the data level.

For detailed information about using RM Concept, see "RM Concept" on page 61.

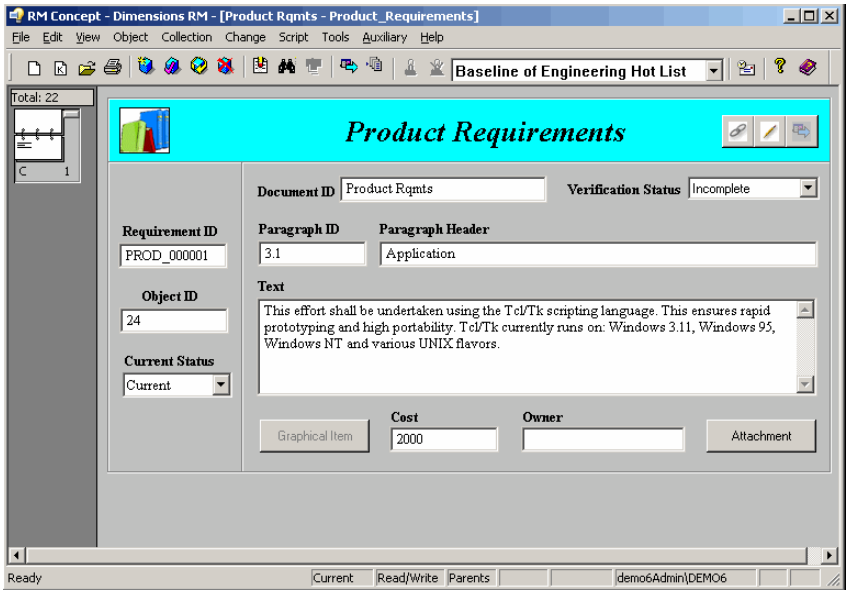


Figure 1-2. RM Concept

RM Word

NOTE RM Import is a replacement for RM Word.

RM Word allows you to capture, delete, and edit data directly from Microsoft® Word. With RM Word, you can register documents in the database and synchronize requirements in a document with requirements in the database. After you have captured data from Word into the database as requirements, you can use RM Browser or RM Concept to modify the requirements.

For detailed information about using RM Word, see "RM Word" on page 209.

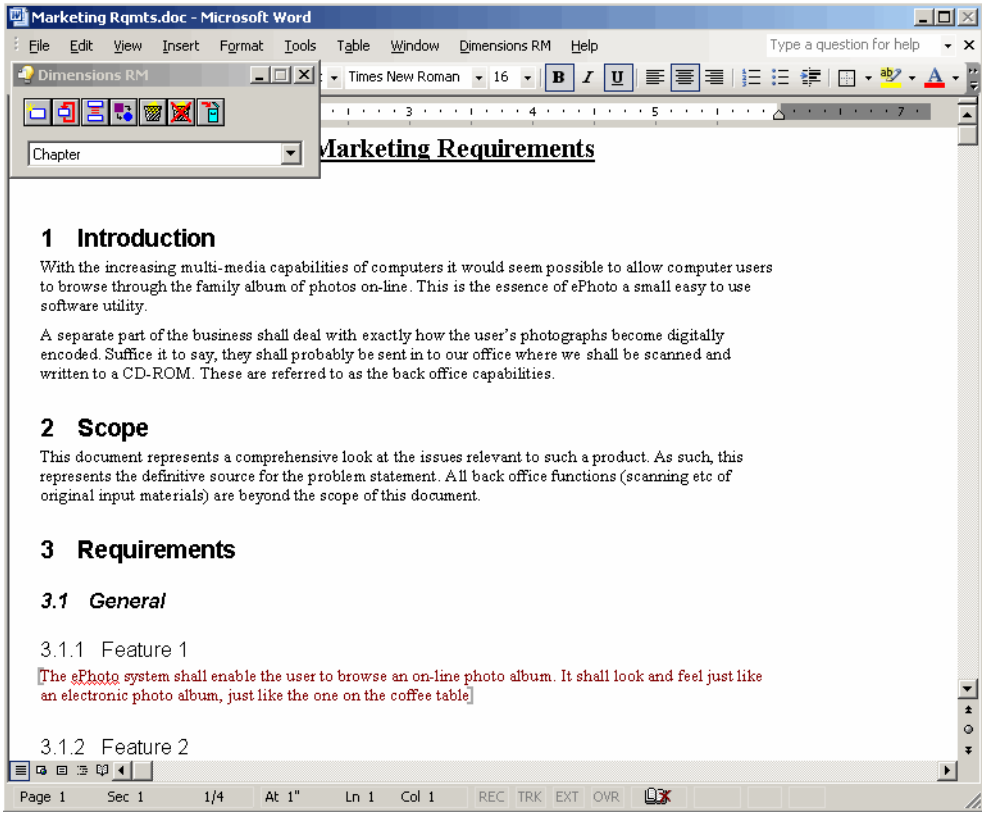


Figure 1-3. RM Word

RM Capture

RM Capture allows you to capture requirements from plain text documents.

For detailed information about using RM Capture, see "RM Capture" on page 195.

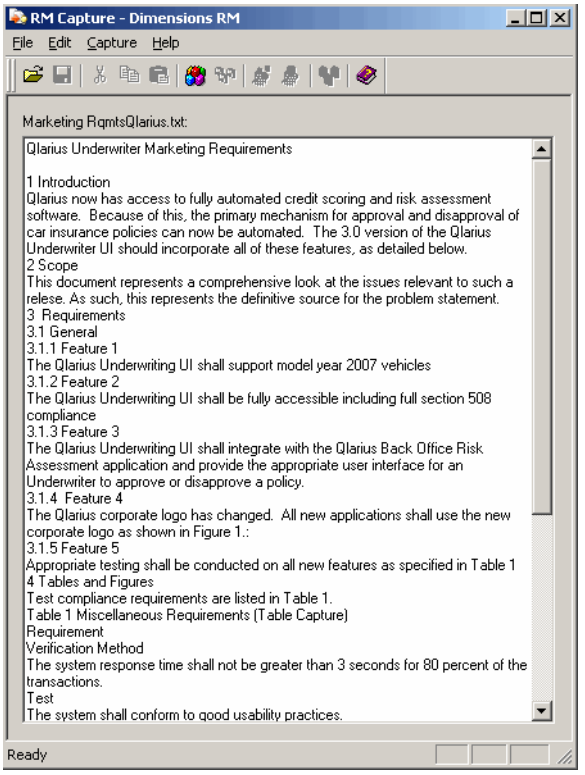


Figure 1-4. RM Capture

RM Import

RM Import allows users to preview a Microsoft® Word document as a draft document, change the description of chapters, reorganize the chapters, change the values of attributes, move attributes between chapters, and so on. When satisfied with the draft document, users can import the document into Dimensions RM as a Documents View "document."

For detailed information about using RM Import, see "RM Import" on page 41.

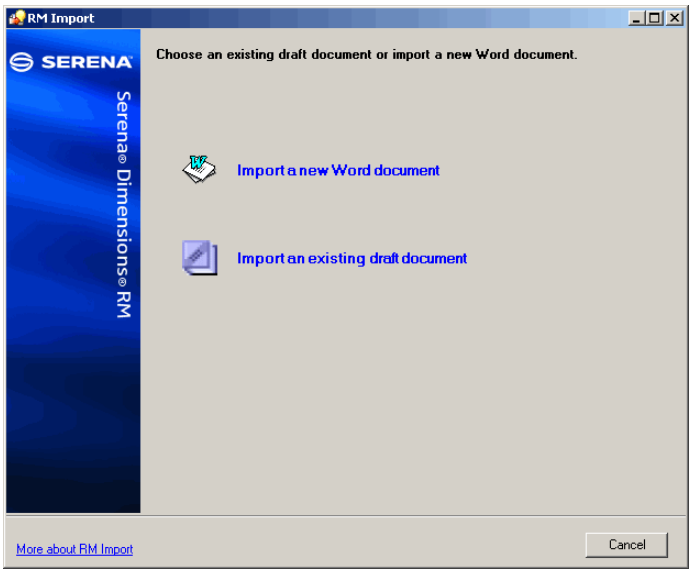


Figure 1-5. RM Import

RM Import Designer

RM Import Designer allows administrators to design templates that users select when importing Word documents using RM Import. The import process creates a "document" in Documents View.

Templates define how to identify classes, attributes, chapters, requirements, and categories. Templates can be saved to the database for future use. Administrators who develop templates must be knowledgeable about class types and the structure of the Word documents that will be imported. For detailed information about using RM Import Designer, see the *Serena Dimensions RM Administrator's Guide*.

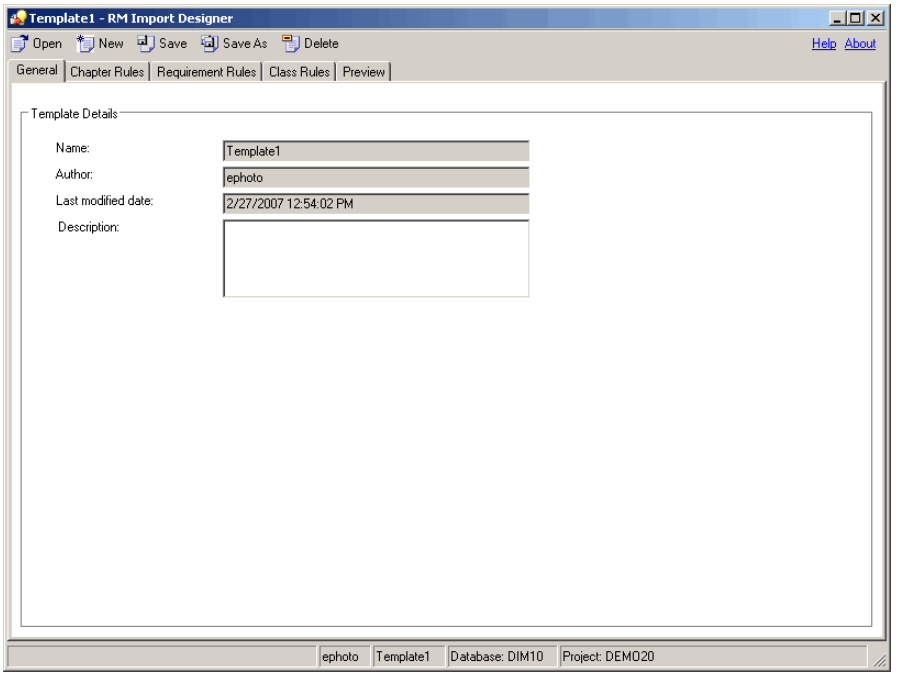


Figure 1-6. RM Import Designer

RM Manage

RM Manage allows project administrators to define users and groups, administer project security, configure the project database, organize data, and control user access and data routing. For detailed information about using RM Manage, see the *Serena Dimensions RM Administrator's Guide*.

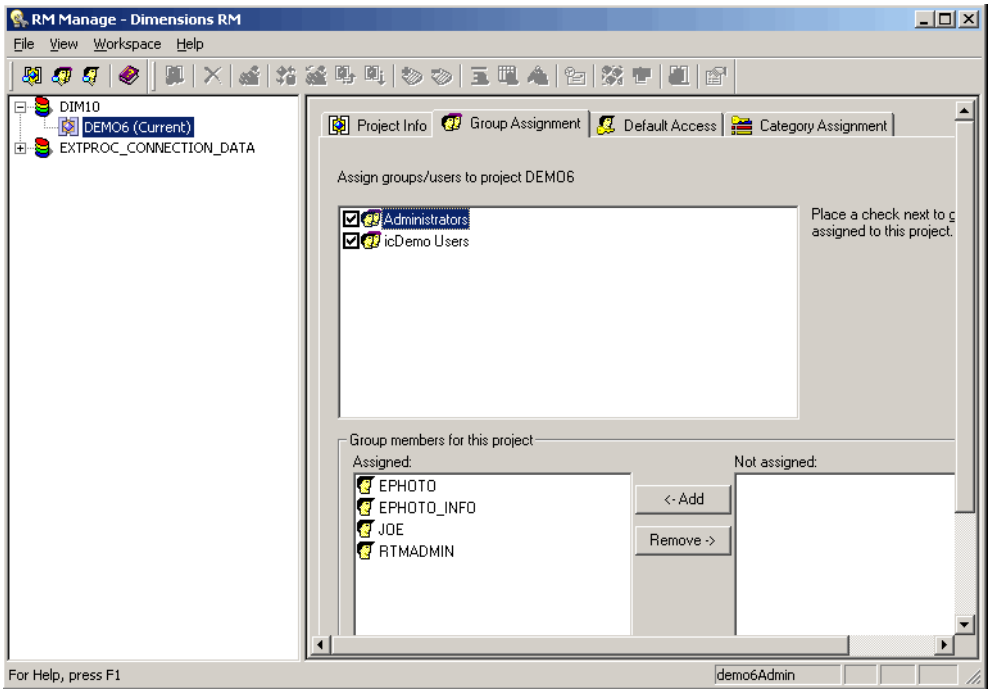


Figure 1-7. RM Manage

Class Definition

Class Definition allows project administrators to set up project schemas in class definition diagrams. This involves defining classes, relationships, attributes, and security. For detailed information about using Class Definition, see the *Serena Dimensions RM Administrator's Guide*.

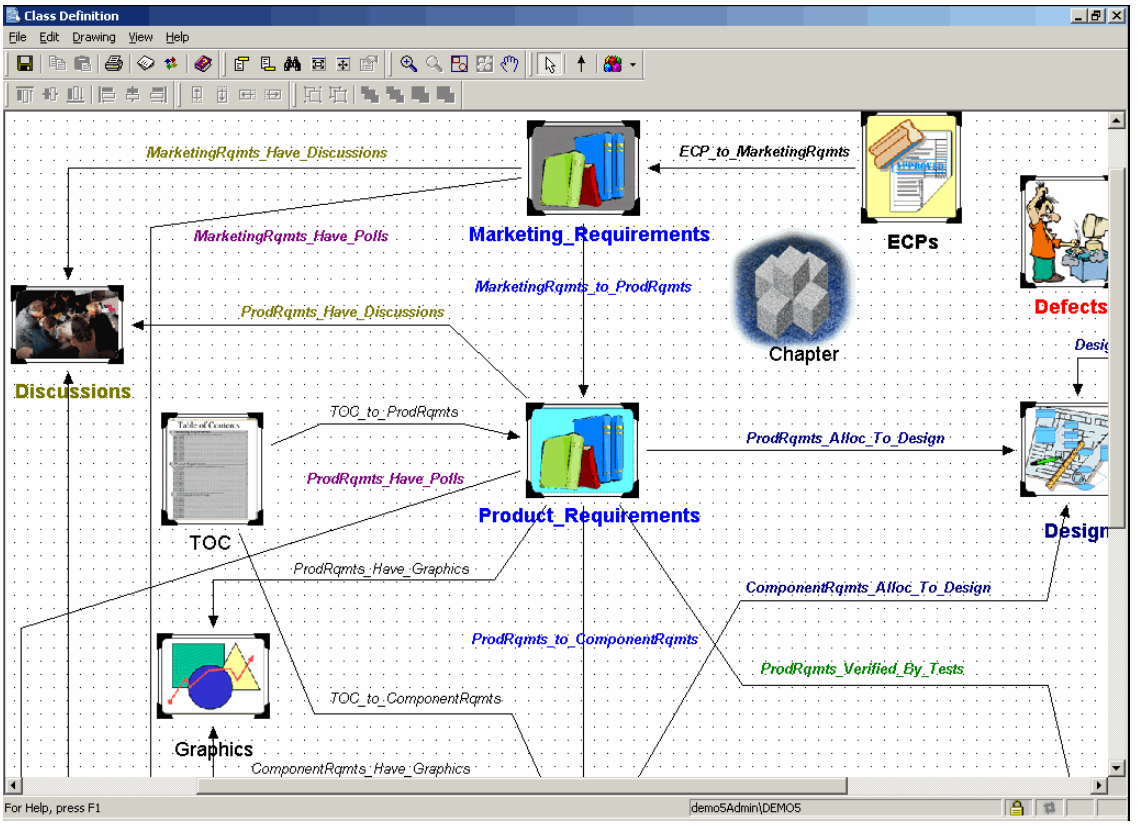


Figure 1-8. Class Definition

Data Structure

The following diagram illustrates the Dimensions RM data structure.

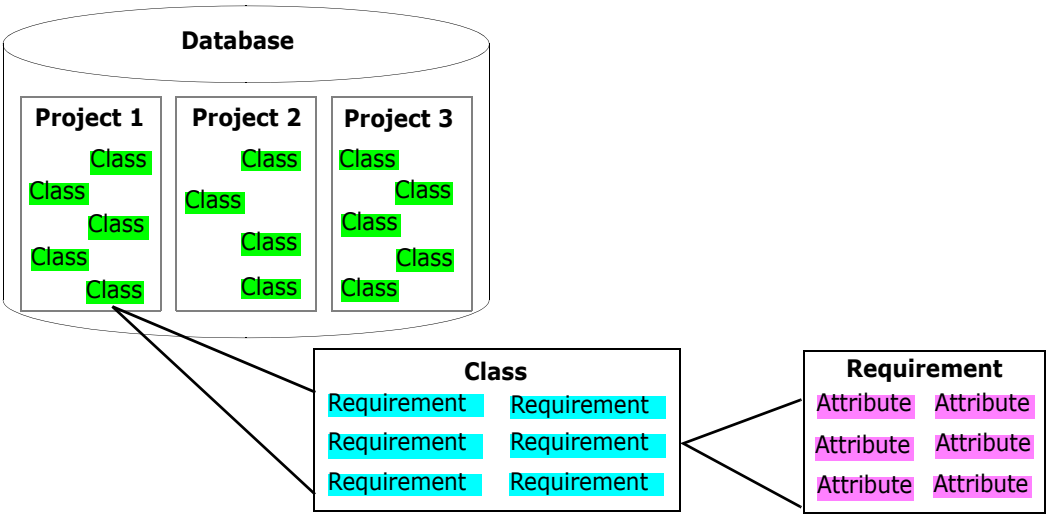


Figure 1-9. Dimensions RM Data Structure

The resources in the data structure are explained in detail later in this chapter. For purposes of illustration, however, consider the example in the following table.

Resource	Value
Project 1	RELEASE1
Class	Customer_Requirements
Requirement	CUST_000007
Attributes	Rqmt ID = *CUST_000007* Document ID = *Customer Requirements* Rollout Plan = *First Release* Priority = *Priority 1* Object ID = *7* Paragraph ID = *3.1.6* Paragraph Title = *Configuration* Current Status = *Current* Text = *All preferences shall be remembered between invocations.*

Basics

This section provides an overview of basic Dimensions RM concepts.

Projects and Databases

Dimensions RM "projects" are groupings of related requirements and other engineering data along with the Dimensions RM customizations (forms, scripts, and so on) that users create to manipulate that data. The project is the main focus of activity within Dimensions RM. Dimensions RM stores projects in an Oracle database. A project in Dimensions RM typically corresponds to an actual project (for example, a product).

NOTE If you want to share requirements among projects, use categories to represent projects. For more information about categories, see "Categories" on page 28.

As a Dimensions RM user, you can access any number of projects and databases from the Dimensions RM tools. Each project uses a single Oracle user account.

Administrators use the RM Manage tool to create and maintain projects. For information about RM Manage, see the *Serena Dimensions RM Administrator's Guide*.

Users and Groups

Users and groups are defined within each Dimensions RM database and are associated with specific projects in the database.

Each Dimensions RM user has a password-protected account within Dimensions RM that identifies the user. The account stores information such as the user's first and last names, and e-mail address. The user name is associated with the modifications made to the project while the user is logged in to the account.

NOTE Dimensions RM user accounts are distinct from operating system user accounts and Oracle user accounts.

While access to project elements can be controlled on a single-user basis, Dimensions RM users are typically organized into groups that can share access privileges. Individual users can be associated with any number of projects through their group memberships. Dimensions RM user groups usually match organizational groups or roles such as Managers, Developers, QA Engineers, and System Engineers. Members of a pre-defined Administrators group can add additional members to the group.

Each Dimensions RM project has a special user account, the project administrator. The project administrator is automatically and irrevocably granted privileges that allow him or her to manage the project. Other users can be given administrative privileges at the discretion of the project administrator. The project administrator uses the RM Manage tool to create and manage users and groups. For information about using the RM Manage tool, see the *Serena Dimensions RM Administrator's Guide*.

NOTE The project administrator is not part of the Administrators group.

Project Schemas

Each Dimensions RM project has its own schema that defines the kinds of information to be managed in the project. A schema contains a number of class and relationship

definitions. Class definitions must be in place to create requirements, and relationship definitions must be in place to create links between requirements.

The project schema does not have to be completely defined before useful work can be accomplished; you only need the classes and relationships that you will use now. As the project evolves, other classes and relationships can be added and existing classes can be changed.

Schemas are created in a class definition diagram through the Class Definition tool. For an illustration of a class definition diagram, see "Class Definition" on page 23. For information about using Class Definition, see the *Serena Dimensions RM Administrator's Guide*.

Classes and Requirements

Dimensions RM classes are used to define and control the information types to be managed within a project. Typically, Dimensions RM classes correspond to the work products of the engineering processes that are to be supported. Common examples of classes include Marketing_ Requirements, Customer_Requirements, Security_Requirements, Software_Requirements, Hardware_Requirements, Action_Items, Test_Cases, and Engineering_Change_Proposals.

NOTE Words in class names must be connected with underscores.

Dimensions RM predefines many classes to be used as templates for class definitions. You can also build your own classes. In class definition diagrams, a class is represented by an icon.

A requirement is an instance of a class.

Relationships and Links

Dimensions RM relationships define the associations between classes. For example, you can create a relationship between the Customer_Requirement and Test_Cases classes that enables you to link a test case to the customer requirements that it fulfills.

Relationships between classes enable the following functions:

- Generating reports containing data from multiple classes
- Checking completeness of data
- Building database subsets
- Assessing impact analysis through traceability

A *link* (for example, an association between a specific customer requirement and a specific test case) is an instance of a relationship. You can link two requirements together if a relationship between their corresponding classes is defined.

In class definition diagrams, a relationship is represented by an arrow connecting two classes. Relationships are directional; the class at the head of the arrow is the *primary* class. The class at the tip of the arrow is the *secondary* class. This distinction is important when navigating and reporting on links between requirements. You can follow a link in either direction, but in many cases, you must know which class is primary and which class is secondary to create effective reports.

NOTE Words in relationship names must be connected with underscores.

Attributes

Classes and relationships represent logical groupings of information. Each class definition and each relationship definition includes its name and its attributes. Attributes characterize the class or relationship in terms of its properties. For example, a Customer_Requirements class could have attributes for a title, a rationale, a textual statement of the requirement, and a priority.

Dimensions RM supplies a core set of *implicit* attributes for each class and relationship. Dimensions RM uses implicit attributes to maintain the integrity of project information. Implicit attributes include intrinsic information such as the project unique identifiers (PUIDs), object IDs, and modification times. You cannot modify implicit attributes; however you can modify their display names.

You can create *user-defined* attributes for use in a specific class. Dimensions RM provides the following attribute types from which to create user-defined attributes:

Attribute Type	Description
Action	Launches another application when the user clicks a button on the form view of an requirement in RM Concept. For example, the action attribute could be defined to open a Microsoft® Excel® spreadsheet. **NOTE:** Action attributes are not supported by RM Browser.
Alphanumeric	Represents one line of alphanumeric text, such as the title of an acceptance test. It can be up to 1000 characters in length.
Date	Stores values that are based on user-defined date formats (for example, DDMMYY, YYYYMMDD, and so on). A date attribute, for example, could be used for dates in which test cases are performed.
File Attachment	Holds a single file that can be accessed through RM Browser. For example, you could add the file attachment attributes *Use Cases*, *Customer Letter*, and *Business Justification* to the Marketing Requirements class. You can then use RM Browser to add the applicable file for each attribute. Users can then view the file or download it to their computers. File attachments can also be included as links in Word documents published from Documents View. The links are displayed as icons. You can double-click the icon in the published document to open the associated file.
Graphic	Holds either graphic images or OLE data captured from RM Word.
List	Provides a list of values from which users make a selection. For example, you could list *Pass*, *Fail*, and *Untested* as valid values for a list attribute named test_result.
Numeric	Holds numeric values, such as reference numbers. The numbers can include decimal points.
Text	Holds up to 64 KB of plain text or HTML text that can span more than one line. It is suitable for long descriptions, such as the description of an acceptance test. In RM Browser, when you click in or tab to a text attribute, an HTML editor opens. The HTML editor provides many common features of word processors.

When you create a user-defined attribute, you can also specify additional properties such as constraints on possible values, and whether an attribute value is mandatory. You can

provide a default value to be used for a mandatory attribute when an actual value is not yet available.

Security

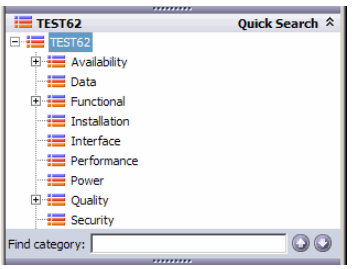
Access rights are associated with each resource defined in a Dimensions RM database. Access rights determine if you can perform a task on a target resource.

The project administrator uses the Class Definition tool to grant or deny access to resources defined in the project schema. This includes all classes, relationships, attributes, and source documents. The list of valid transactions for each of these different resources varies. If the project administrator does not grant or deny access to a specific resource in Class Definition, the default access defined in RM Manage for the resource category is used.

Categories

Categories provide a way to organize and limit access to requirements, scripts, and filters. Administrators can use categories to restrict access to these entities to a group of users. Administrators can also use categories to organize and access projects and sub-projects. After an administrator grants a user access to a category through group membership, the privileges available to the individual user or to the group through which the user was granted access are applied.

Categories are represented by a hierarchical structure inside a Dimensions RM project. Each node of the hierarchy can have different permissions settings for groups of users. All nodes in the hierarchy share the same schema. The category structure is displayed in RM Browser in the category tree pane of Requirements View, in the Customize Home page, and in query dialogs. For more information about RM Browser, see "RM Browser" on page 48. An example of a category tree pane in Requirements View is shown in the following illustration.



A requirement can belong to only one category. In RM Browser, you can move a requirement from one category to another. The category to which a requirement belongs can be viewed in the **Edit Attributes** dialog, in other areas of RM Browser, and in other Dimensions RM tools. Categories can have subcategories, but each category can be a child of only one category. Each category can have requirements from all classes. The default root category has the same name as the project.

An administrator assigns group permissions to categories in RM Manage, and can add, delete, and rename categories in RM Browser. For more information about these tasks, see the *Serena Dimensions RM Administrator's Guide*.

Requirement Creation

You can use the following methods to create requirements:

- Capture requirements from documents

  You can capture requirements from source documents that you register with Dimensions RM. Dimensions RM works with Microsoft Word (using RM Import or RM Word), plain text documents (using RM Capture), and comma separated value (CSV) files (using the CSV Import wizard).

  For documents captured through RM Word, Dimensions RM retains the linkage between the requirements captured in the project and their original locations in the source document. This linkage allows Dimensions RM to maintain synchronization between the document and the captured documents stored in the project. Each time you open the source document through RM Word, Dimensions RM prompts you to synchronize the document with the project. Differences between the project and the document version of each captured item are highlighted and presented to be reconciled.

- Enter requirements directly into Dimensions RM using a Dimensions RM tool, such as RM Browser or RM Concept.
- Import requirements from another tool such as Serena® Business Mashups (formerly known as TeamTrack), IBM® Rational® Software Modeler, HP Quality Center, Microsoft® Project, and Microsoft® Excel®.

NOTE For information about the integrations between Dimensions RM and other tools, see the integration guides listed in the "Preface" on page 9.

Requirement Evolution

As you evolve requirements within Dimensions RM, their history is retained so that you can trace the evolution of a requirement from its creation through to the current version. There is an implicit parent-child link between successive versions of a requirement.

Audit Trail

As you evolve requirements within your project, Dimensions RM retains the various versions of your requirements. This historical trace, known as the *audit trail*, allows you to reconstruct requirement evolution when needed (for example, to evaluate progress over time). At each stage of the evolution, you can record a rationale for changes, thus retaining project knowledge as well as the physical changes.

Current Status

A special implicit attribute, Current Status, identifies the state of the requirement. The Current Status values are described in the following table.

Current Status	Description
Current	The requirement is the most recent or current version.
Replaced	The requirement has been replaced by a newer version.
Proposed	A change request has been made to either change the current requirement or create a new requirement.
Accepted	A change request was accepted.

Current Status	Description
Rejected	A change request was rejected.
Deleted	The Current Status of the requirement is changed to Deleted, but the requirement remains in the project.

Operations on Requirements

There are two commands for saving changes you made to a requirement:

- **Update**—The Update command changes the content of the requirement as you specify, leaving all other attributes, including Current Status, intact. Update is often best reserved for minor changes such as correcting typographical errors. Because the requirement is not versioned with the Update command, it is highly recommended that only project administrators have permission to perform updates.
- **Replace**—The Replace command creates a new version of the requirement with the changes you made. With Replace, the Current Status of the original requirement is changed from Current to Replaced, a parent-child link is created from the original requirement to the new requirement, and the Current Status of the new requirement is set to Current.
- **Copy**—The Copy command creates a new requirement with the same attribute values as another requirement. An administrator specifies the attributes to copy in Class Definition. For more information, see the *Administrator's Guide*.

There are three commands that allow you to correct mistakes or undo changes you made:

- **Delete**—The Delete command changes the Current Status of a requirement to Deleted, but leaves the requirement in the project.
- **Undelete**—The Undelete command changes a Deleted requirement back to a Current requirement.
- **Remove**—The Remove command physically removes the requirement from the project. Only requirements with the Current status can be removed. It is highly recommended that only project administrators have permission to remove requirements.

When someone submits a change request to change a current requirement or create a new requirement, a copy of the current requirement is created with the current status of Proposed. There are two commands that can be used on a Proposed requirement:

- **Accept**—The Accept command accepts a proposed change. The current status of the proposed requirement becomes Accepted, and a copy of that requirement is created with the current status of Current.
- **Reject**—The Reject command rejects a proposed change. The current status of the proposed requirement becomes Rejected.

Requirement Lifecycle

The requirement lifecycle is shown in the following illustration.

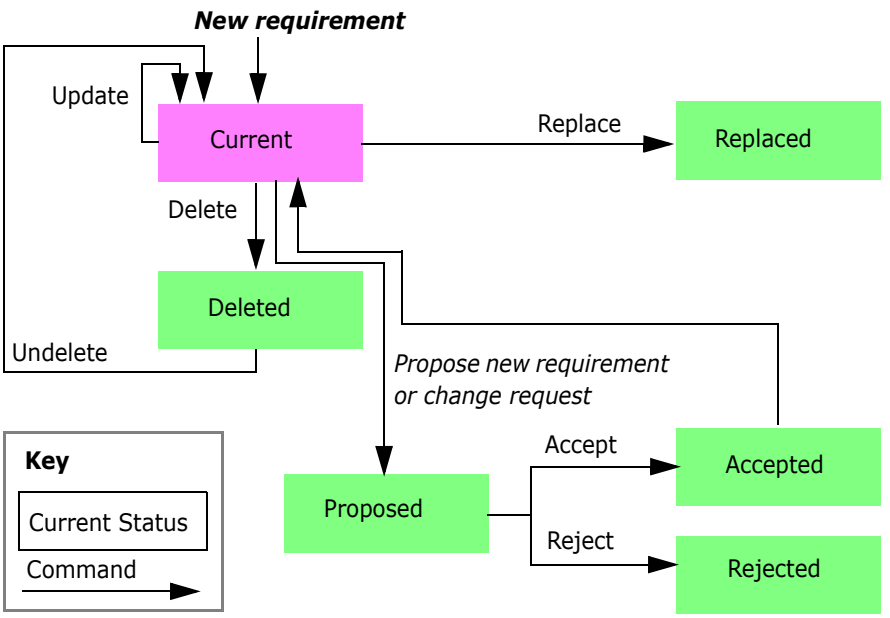


Figure 1-10. Object Lifecycle

Requirement Views

You can view data in a source document from its native tool (for example, Microsoft Word). There are five other ways to view objects in Dimensions RM:

- Form view
- Grid view
- Paragraph layout
- Grid layout

Form View

The form view displays one object at a time. From the form view in RM Browser and RM Concept, you can edit object attributes. From the form view of RM Concept, you can also find objects. The form view in RM Browser is available in the Requirements View.

Dimensions RM generates a default form for each class based on its attribute definitions. In RM Concept, you can build user-defined forms by customizing the system-generated form with the simple drag-and-drop editor.

The following illustration shows the form view in RM Browser.

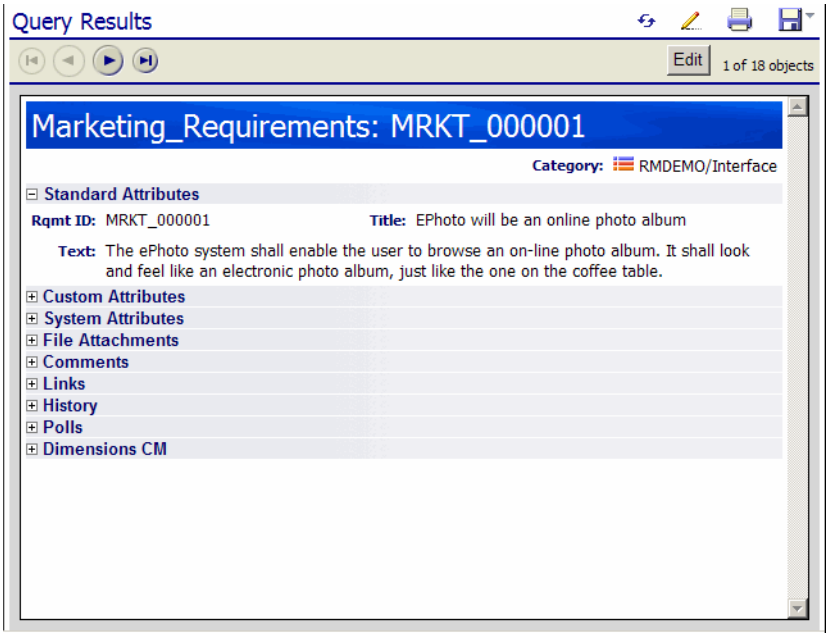


Figure 1-11. Form View in Requirements View in RM Browser

In RM Concept, Dimensions RM generates a form for each relationship based on the default class forms of the primary and secondary class. The forms are displayed in a split workspace. In the following illustration, Marketing_Requirements is the primary class, and Product_Requirements is the secondary class.

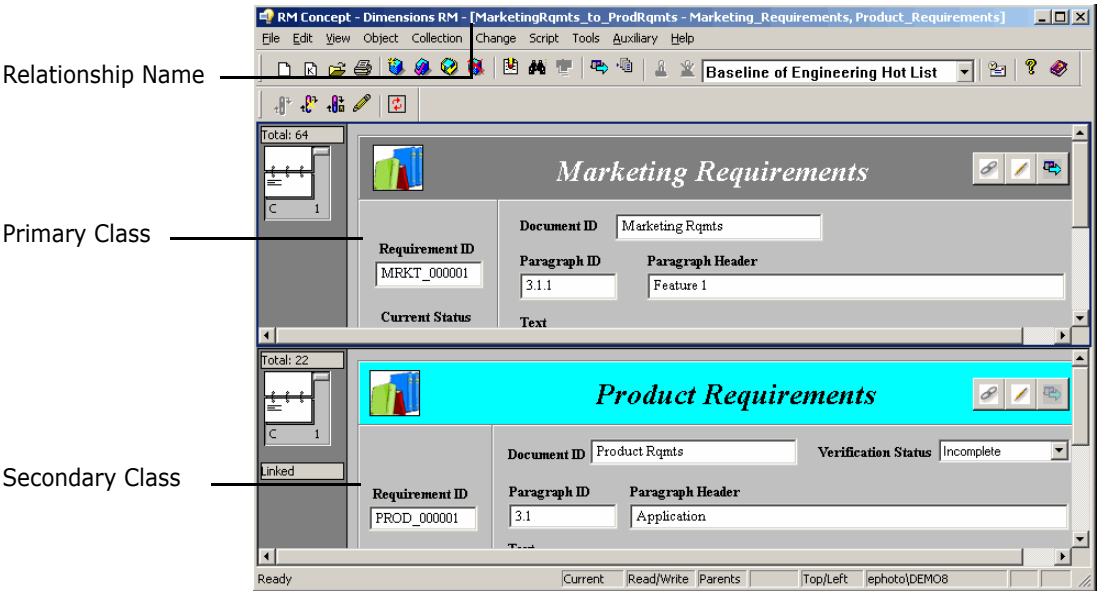


Figure 1-12. Form View of a Relationship in RM Concept

Grid View

The grid view displays multiple objects in a table-like list. The column headings represent attributes of the object. The rows contain the data stored in the attributes. The following illustration shows the grid view in RM Browser.

Query Results

MARKETING_REQUIREMENTS

Rqmt ID	Title
MRKT_000001	EPhoto will be an online photo album
MRKT_000002	Support Advantix formats
MRKT_000003	Runs on "standard" home PC
MRKT_000004	Annotate photos with text
MRKT_000007	On-line help provided
MRKT_000020	Provide photo special effects
MRKT_000021	Border layouts provided
MRKT_000022	Photo meta-info can be stored
MRKT_000023	Displaying stored photo info
MRKT_000024	Stored photo slideshows
MRKT_000025	Setting personal preferences
MRKT_000026	Application preferences remembered
MRKT_000027	Production cost less than $50
MRKT_000029	System response times
MRKT_000030	System weight
MRKT_000031	System comes in different colors
MRKT_000033	Maintenance levels

Figure 1-13. Grid View in Requirements View in RM Browser

Paragraph Layout

The paragraph layout in the Documents View of RM Browser displays requirements as paragraphs in a list.

4.2 Vision of Major Features Refresh Edit Print

Requirements Layout: Grid | Paragraph

4.2.1 Users shall be able to interact

Rqmt ID: PROD_000024

- Users shall be able to interact with Windows Sharepoint Services.

4.2.2 The process of working with other

Rqmt ID: PROD_000026

- The process of working with other shall be made easier by using document workspaces.

4.2.3 The application shall provide

Rqmt ID: PROD_000027

- The application shall provide as part of the GUI a means for users to check for updated versions of files, confirm if team members are online, view lists of related files, and view file properties.

4.2.4 QlariWord shall provide access-control-list

Rqmt ID: PROD_000028

- QlariWord shall provide access-control-list management (ACLM) for all documents.

4.2.5 The international customers will

Figure 1-14. Paragraph Layout in Documents View in RM Browser

Grid Layout

The grid layout in the Documents View of RM Browser displays multiple objects in a table-like list. The column headings represent attributes of the object. The rows contain the data stored in the attributes.

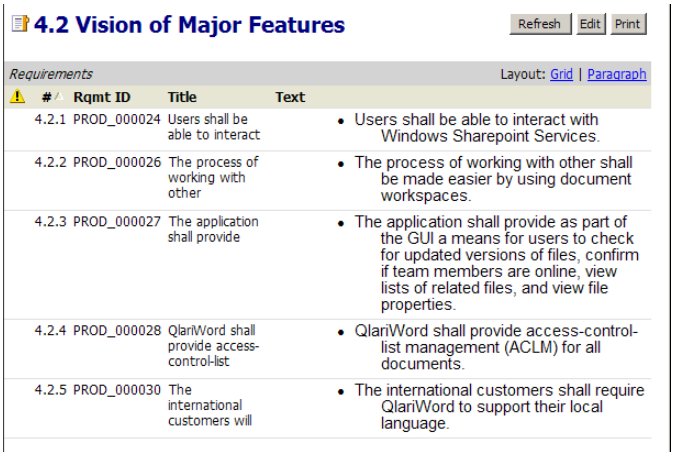


Figure 1-15. Grid Layout in Documents View of RM Browser

Queries

Queries are filters, scripts, and traceability reports, expressed in terms of the project schema, that you use to retrieve selected objects. Filters are queries against a single class. Scripts are queries against one or more classes. Traceability reports are queries based on relationships. Dimensions RM has an SQL-like language that handles input parameters and performs simple computations. In general, searches of project data are based on selection criteria in which you specify constraints on attribute values and links.

The following describes filters and scripts:

- **Filters** are stored queries that you can create, name, and store.
  - **Form filters** are the simplest kind of filter, but they are limited in terms of the complexity of the selection criteria. Form filters can select for simple attribute value combinations from among the objects of a class.
  - **Complex filters** provide greater expressive power for the selection criteria. With complex filters, you can construct detailed logical expressions that use attribute values, ranges of attribute values, and membership in relationships as selection criteria.
- **Scripts** are the most comprehensive way to perform searches. They can be used to combine the selection criteria capabilities provided by complex filters, with complex link traversal, parameterization, basic calculations, and output formats. You can use any of these search mechanisms to locate data for review, modification, or export.
- **Traceability reports** are queries that use relationships as selection criteria. You specify a top-level class, and then select classes that have a relationship with the top-level class. You can constrain the query based on a collection, baseline, document, or category.

You can create filters and scripts in RM Browser, RM Concept, and RM Explorer. You can run filters and scripts from RM Browser and RM Concept.

You can create and run traceability reports in RM Browser. You can view a traceability report in RM Concept, but if you do, it becomes a regular script and can no longer be viewed as a traceability report in RM Browser.

In Requirements View in RM Browser, you can use the quick search feature to quickly run a query to see the content of any category based on criteria you specify.

Query Terminology

As described earlier in this chapter, a relationship connects a primary and secondary class. Relationship constraints are logical expressions that are used as filters to constrain searches. This section describes terminology and concepts that you encounter when you construct relationship constraints in queries.

NOTE Source and immediate relationships can be used to construct relationship constraints in RM Browser; however, relationship operators are not supported in RM Browser. Relationship operators can be used in combination with source and immediate relationships to construct relationship constraints in RM Explorer and RM Concept.

Relationship Operators

The relationship operators PRIMARY_IN and SECONDARY_IN are used to identify objects that are either at the origin or termination of a link. The relationship operators NOT_PRIMARY_IN and NOT_SECONDARY_IN identify objects that may participate in such links, but do not. These operators are useful in locating objects that you are interested in linking. For example, given a relationship that connects system requirements to test cases, you could use the "not" operators to find requirements that are not associated with test cases.

Source and Immediate Relationships

Source and immediate relationships are special relationships that are used to locate versions of objects.

- A *source* relationship refers to the original object in a chain of versions.
- An *immediate* relationship refers to the immediate predecessor or successor of an object.

Relationship Operators in Source and Immediate Relationships

The following table lists relationship operators and describes their meanings in source and immediate relationships.

Operator	Source	Immediate
PRIMARY_IN	Requirements that have no parents (source requirements)	Requirements that have children (not the lowest level requirements)
SECONDARY_IN	Requirements that have no children (the lowest level requirements)	Requirements that have parents (derived requirements)

Operator	Source	Immediate
NOT_PRIMARY_IN	Requirements that have parents (derived requirements)	Requirements that have no children (the lowest level requirements)
NOT_SECONDARY_IN	Requirements that have children (not the lowest level requirements)	Requirements that have no parents (the source requirements)

Reports

Reports are the results of queries made through filters and scripts. You can create scripts to generate documents, traceability matrices, and other types of reports. Named scripts are stored in the database as project resources and can be exported to the file system as text files where they can be used from the command line.

You can execute scripts from the command line, RM Browser, or RM Concept. You can export the reports to files in a variety of formats, including Microsoft® Word, Microsoft® Excel®, Rich Text Format (RTF), Comma Separated Value (CSV), HTML, and XML.

Collections

Collections are a way to group objects of any class. Once a collection is created, it can be associated with an object by linking the object to the collection. Each object can be linked to many different collections, and each collection can be linked to many different objects. In RM Browser, objects can be linked to collections manually. In RM Concept, objects can be linked to collections either manually or automatically. Collections can be referenced in scripts, making script creation simpler.

Parent collections contain child collections. Child collections contain objects. The hierarchy formed by the parent-child connections allows collections to be grouped into larger collections. For example, a parent collection called *Operations* can contain child collections for several types of operations, such as *Administrative*, *Storage*, and *Retrieval*.

A common use of collections is baselining. A baseline is a snapshot of objects at a particular time. You can create a collection called Baseline 1 that is a snapshot of all objects at the Alpha phase of the project. Later in the release cycle, you can create a collection called Baseline 2 that is a snapshot of all objects at the Beta phase. You can run reports that show the differences between objects in Baseline 1 and Baseline 2.

You can create collections in RM Browser, and RM Concept.

Traceability and Impact Analysis

Links allow you to specify precisely which objects are related and why they are related. The relationships that you set up in your class definition diagram, and the corresponding links among objects that you subsequently create or import, form interconnections throughout your documents, models, test assets, and other work products. These physical connections model logical connections among the project data.

Traceability and impact analysis are two ways you can analyze linkages. You can view traceability and impact analysis through reports run in RM Browser or RM Concept.

Traceability

Different kinds of traceability result from different kinds of relationships. Relationships between different requirements classes can be used to show dependencies, such as the connection between operational requirements and software requirements.

Dimensions RM also manages relationships between successive versions of a particular object. This gives you the history of the object and allows you to trace its evolution through your project life cycle.

You can use traceability to answer questions about the completeness and consistency of your requirements management effort. Such questions include:

- How many operational requirements have not yet been addressed by software or hardware requirements?
- How many software requirements are not covered by test cases?
- How many requirements had successful tests for the current build?

Impact Analysis

Having established traceability, you can perform impact analysis to examine the effects of certain changes. For example, if a particular system requirement is changed, what parts of the dependent software or hardware requirements are affected? What parts of the design, code, or test plan are affected? The answers to these questions help you scope the effort required to absorb requirements changes.

Change Management

As discussed in "Requirement Evolution" on page 29, change management allows you to propose new objects or changes to existing objects, while keeping them separate from the existing objects. A proposed change object is an instance of the appropriate class, with its Current Status attribute set to Proposed.

Dimensions RM also provides a class type with which to build Engineering Change Proposals (ECPs). As you create a set of related proposed objects, you can link them to an ECP object so that they are easily accessible for review as a group.

ALM Integration with Dimensions CM

The Application Lifecycle Management (ALM) integration lets you associate Dimensions RM requirements to Serena® Dimensions® CM requests. When you add a requirement to or remove a requirement from a collection, Dimensions CM is notified with the relevant information. Dimensions RM baselines flow to Dimensions CM, and Dimensions CM baselines flow to Dimensions RM.

You can associate a collection with one or more Dimensions CM projects, and can associate a Dimensions CM project with one or more collections. For more information, see the *Dimensions CM - Dimensions RM ALM Integration Guide*, available from the Dimensions CM documentation download area on the Serena Support Website.

Demonstration Projects

The QLARIUS_RM demonstration project lets business analysts and product managers quickly understand how the key functionality of Dimensions RM is beneficial in their own requirement lifecycles. QLARIUS_RM demonstrates how requirements are categorized and stored, and how the requirements lifecycle is automated and enforced. QLARIUS_RM provides predefined requirement classes, links between classes, and built-in reporting.

RMDEMO is another demonstration project that provides a rich set of Dimensions RM features and functionality.

Use Case

The following use case illustrates how Dimensions RM can be used to provide requirements management and traceability. In this use case, a new project is about to begin. The requirements for the project have been defined and are recorded in Microsoft Word documents. The Word documents are *Marketing Requirements.doc*, *System Requirements.doc*, and *Test Cases.doc*. These documents correspond to RM classes.

NOTE Unless otherwise specified, the tool used in the following steps is RM Browser.

Creating a Project

1 Mike, the project administrator, creates a new project in RM Manage.

He defines the project schema in Class Definition, adds users and groups, assigns users to groups and to the project, establishes access rights, and sets security for the documents.

Capturing Requirements

2 Andrew, the project manager, uses RM Import to import data from the Word documents into the Dimensions RM database. In the Dimensions RM database, the imported data become objects of the Marketing_Requirements, System_Requirements, and Test_Cases classes.

Reviewing Requirements

3 Jessica, a system engineer, wants to review the marketing requirements to be sure that they can be implemented. She runs and saves a filter that returns all marketing requirements.

Customizing RM Home Page

4 Because Jessica expects to refer to this report frequently, she adds it to her Home View in RM Browser.

Adding Comments

5 Jessica questions whether one of the requirements can be implemented as written. She adds a comment to this requirement.

Reviewing Comments

6 Barry, the marketing lead for the project and the author of the marketing requirements, opens the pre-built query called "Recent Comments" in his Home View.

NOTE Alternatively, Barry could have run a relationship query called Mktg_Reqmts_Have_Discussions. The report generated from the query would list the marketing requirements on the left side of the report. The comments, if any, are displayed to the right side of the applicable marketing requirement. (This relationship was established by Mike in Class Definition when he created the project schema.)

Polling

7 For one of the comments, Barry needs input from the rest of his team. He opens a poll that asks the question he wants answered, and provides a series of answers from which the poll participants can choose. Because he needs to resolve the issue quickly, he sets the poll to end at 5:00 P.M. today.

8 The poll participants each receive an e-mail message that notifies them of the poll and that provides a link to the poll.

NOTE For e-mail messages to be sent, the RM Mail service must be running and the user accounts of the poll participants must include their e-mail addresses.

9 The poll participants click the link, and RM Browser opens to the **Cast Vote** page. The poll participants vote by choosing one of the answers to the question that was posed.

Submitting a Change Request

10 Based on the input that Barry received from the poll, he decides to modify the implementation of the requirement. He submits a change request against the requirement.

A copy of the current requirement is created with the current status of Proposed.

Rejecting a Change Request

11 Alex, the product manager, considers the original requirement to be nonnegotiable. He rejects the change request.

The current status of the change request is changed from Proposed to Rejected, and the current status of the requirement remains Current.

12 Barry and Alex have a meeting to discuss the requirement, and Barry convinces Alex that the proposed changes still satisfy the marketing requirement.

Accepting a Change Request

13 Alex accepts the rejected change request.

The current status of the change request is changed from Rejected to Accepted. A new copy of the requirement with a current status of Current is created, replacing the prior version of the requirement.

Viewing the Audit Trail

14 Alex wants to view the audit trail created by the requirements changes. To do so, he uses the **History** section of the requirement in RM Browser.

Adding a Requirement

15 Barry adds a new requirement by using the **Create** command in the **Requirement** menu in RM Browser.

Linking Objects

16 Samantha, a test engineer, wants to link her test cases to the appropriate system requirements. In RM Browser, she manually links selected system requirements to the test cases class.

NOTE Alternatively, Samantha could have created links automatically by using the CSV Import wizard, which is accessed from RM Concept.

Performing Traceability

17 Andrew wants to see which system requirements are being addressed by test cases. In Traceability View, he creates and prints a traceability report that allows him to analyze the linkages between system requirements and test cases. This makes it easy to see which system requirements do not have test cases associated with them. He can limit the report to selected baselines, documents, collections, or categories.

18 Andrew wants to distribute the report to the QA team so it can address the system requirements that are not covered by test cases. He saves the report as an HTML file and e-mails it to the QA team.

Performing Impact Analysis

19 Jessica wants to determine how a change to one requirement affects other areas downstream. She uses Traceability View in RM Browser to display the flow down for the single requirement.

Creating a Baseline Collection

20 The project is approaching a milestone review, and Mike wants to create a baseline of the current state of the project. The baseline will represent a snapshot of the marketing requirements, system requirements, and test cases.

Mike uses RM Browser to create a new collection called Baseline 1, and then adds objects from the Marketing_Requirements, System_Requirements, and Test_Cases classes to the collection. He later creates baselines for each of the major milestones, including the final release.

NOTE Alternatively, Mike could have created links automatically by using the Autolink feature in RM Concept.

Chapter 2

RM Import

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What is RM Import?

RM Import allows you to:

- Import requirements from Microsoft Excel. You can import standalone requirements, entire worksheets, or entire Excel files as documents in Dimensions RM. When importing standalone requirements, you can optionally import them to a single class, or to multiple classes. You may also import links between requirements.
- Preview a Microsoft® Word XP, Microsoft Word 2003, or Microsoft Word 2007 document as a draft document. You can then change the description of chapters, reorganize the chapters, change the values of attributes, move attributes between chapters, and so on. When you are satisfied with the draft document, you can import the document into Dimensions RM as a document in Document View. The result of the import is a new document comprised of chapters and requirements that can be viewed and modified in the Documents View perspective in RM Browser. For more information about Documents View, see "Working in Documents View" on page 63.

You can also import Word documents directly from RM Browser, however there are some cases when this may not be the best approach. For more on importing using RM Browser, please see the *Dimensions RM Browser User's Guide*.

IMPORTANT! You cannot import the changes you make in Document View back into the original Microsoft Word document. Roundtripping between Dimensions RM and Word is not supported.

NOTES

- In Document View, requirements always appear before subchapters. However, in the Preview screen in RM Import, the order is consistent with the order in the Word document.
- RM Import works with only one project at a time.
- The .docx format is supported with Office 2007 only. Use of the .docx files with the compatibility pack on non-Office 2007 versions is not supported.
- RM Import requires that Word be installed on the client machine. No other Microsoft® Office program is required. RM Import needs the PIA (Primary Interop Assembly) that is installed by default. No special permissions are required. Before you use RM Import, be sure that Word is activated (that is, open Word at least once before using RM Import).

  RM Import also requires that Word be installed on the server. No other Office program is required. The installation configures the user to run as an interactive user; no other permissions are required. Make sure that any other program associated with the Word document is activated (for example, if you publish a Word document with a .pdf attachment, make sure that Adobe® Reader® is activated on the server).

Users (typically administrators) use RM Import Designer to design templates that you select when you import Word documents. Templates define how to identify classes, attributes, chapters, requirements, and categories. For information about RM Import Designer, see the *Serena Dimensions RM Administrator's Guide*.

You can import either a new Microsoft Word document or import a draft document that you have already worked on and saved. A different screen opens, depending on whether you click **Import a new Word Document** or **Import a Draft Document** on the screen that opens after you log in.

IMPORTANT!

- RM Import always works from a copy of the Word document in the user temp file location, so no information from the original Word document is lost.
- Word uses unique, proprietary styles and formatting; therefore, the styles and formatting of the Word document (for example, some lists, bullets, and fonts) are not necessarily preserved in Document View. However, RM Import always attempts to import all text to prevent data loss.
- Documents in Document View are **NOT** the same as the Microsoft Word documents from which they were imported. Dimensions RM does not store the Word document; it parses the data into classes (requirements and so on) so the data is available to the entire project.

NOTES

- If the track changes feature is being used in the Word document, RM Import prompts you whether you want to accept the changes. If you decline, the previewing and parsing stop.
- For limitations on what can be imported with the RM Import tool, see the "RM Import Designer" chapter in the *Serena Dimensions RM Administrator's Guide*.

TIPS Before you import a Word document, examine the log file carefully for errors that could cause data corruption. The log file is named `RMImport.log` and is stored in the *`<RM Install Dir>`*`\logs` directory.

Logging in to RM Import

Logging in to RM Import is a two-part process:

- Validating the server
- Logging in to the Dimensions RM project

The server validation must occur before you can log in to a Dimensions RM project. If you are using secure socket layers (SSL), which is an advanced security feature, a certificate selection dialog may be displayed during the server validation. The situation in which this dialog is displayed is discussed later in this procedure.

NOTE Before you log in, you must know the URL or name and port number (if not 80) of the server running the RM Web service, and have access to at least one project running on that service.

To log in to RM Import:

1 Do one of the following:

- Select **Start** > **Programs** > **Serena** > **Dimensions RM** ***version*** > **RM Import**.
- Double-click the RM Import shortcut on your desktop.

The RM Import login screen opens.

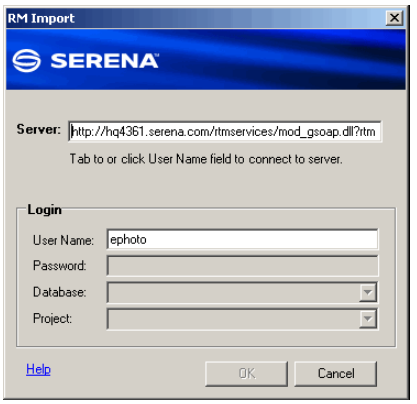

Figure 2-1. Log In Screen

2 In the **Server** field, type the name of the server that hosts the RM Web service. You can type a full URL or just type the server name and press the Tab key, and the default URL is built. If the port number is not 80, type the port number after the server name, separated by a colon.

An example URL is `http://PC2040/rtmservices/mod_gsoap.dll?rtmservice`

NOTES

- The default URL works for both Apache and IIS servers.
- It is a good practice to copy the complete URL that is in the **Server** field to the address bar of a Web browser window and test that it connects to the server on which your Web service is hosted. This is a good test for http and https to validate that the Web service is up and running.

If your URL includes `https://` for SSL, an additional dialog can be displayed that lets you choose which personal certificate you want to use. This dialog is displayed if more than one certificate is in your personal store.

NOTES

- This dialog shows personal certificates only.
- The certificate information is not cached, so you are prompted for a certificate every time you log in.

3 The **User name** field is populated with the last value you entered, if any. If necessary, type your user name.

NOTES

- The server connection is attempted when you click on or tab to the **User Name** field.
- The **Password**, **Database**, and **Project** fields are enabled only after the server is connected.

4 In the **Password** field, type your password.

5 In the **Database** field, select the Dimensions RM database from which you want to work.

6 In the **Project** field, select the project with which you want to work.

NOTES

- The projects in the list are those that you have permission to log in to. If no projects appear in the list, then either an error occurred or you do not have permissions for any project on the server.
- If you receive an HTTP 401 authentication error when you attempt to log in, notify your administrator. The *Serena Dimensions RM Administrator's Guide* contains information about resolving this issue.

7 Click **OK**. The **Choose an existing draft document or import a new Word document** screen opens.

Importing a Microsoft Excel Document

You can import requirements from Microsoft Excel in the following ways:

- ***Single class*** to import rows from an Excel file to a single class of standalone requirements. See "Importing to a Single Class" on page 45.
- ***Multiple class*** to import rows from an Excel file to multiple classes of requirements. You can link requirements in this way as well. See "Importing to Multiple Classes" on page 46.
- ***Document*** to import worksheets from Excel files to documents in RM. This is especially useful when importing from IBM Rational DOORS. See "Importing Excel Files" on page 49.

Importing to a Single Class

You can map rows in an Excel worksheet to a single requirement class. All rows are imported to one class at a time. Columns in the Excel file correspond to attributes in the requirements. When you configure the import, you map the columns to attributes. For example, you might import the following rows from an Excel file:

	A	B	C	D
1	**Name**	**Designer**	**Description**	**Status**
2	Image Viewing Size	Dev1	Ensure users can specify image viewing sizes and that the settings are saved	Design
3	Open image on Windows	Dev1	Ensure that image can be opened and viewed via Microsoft-based application	Design
4	Copy and past	Dev2	Support standard Windows copy and paste operations	Implemented
5	Database installation	Dev3	Ensure that database installs properly	Implemented

You can map the **Name**, **Designer**, **Description**, and **Status** columns to corresponding attributes, resulting in the creation of four new requirements, one for each row.

Importing to Multiple Classes

You can map rows in an Excel worksheet to multiple requirements classes, and optionally link them. To do this, the rows and columns must be laid out in a specific format to delineate the different classes and establish the correct hierarchy between the classes. A set of columns corresponds to a requirement class, and each column within that set maps to an attribute. For example, to import to two classes, you must have two sets of columns in a worksheet. Rows in columns A, B and C might be imported to requirements of one class, while rows in columns C, E, and F are imported to another class. By positioning requirements in columns A-C beside requirements in columns D-F, you can also define hierarchical relationships between them and create links as part of the import process.

In the following example, you can import requirements to multiple classes and link requirements that are positioned beside each other:

	A	B	C	D	E	F
1	**PUID**	**Title**	**Text**	**PUID**	**Title**	**Text**
2	4	A1	A1_desc	1	B1	B1_desc
3				2	B2	B2_desc
4	5	A2	A2_desc	3	B3	B3_desc
5				4	B4	B4_desc
6				5	B5	B5_desc
7	6	A3	A3_desc	6	B6	B6_desc

In this example, the import creates:

- Three class "A" requirements: A1, A2, and A3. PUID, title, and text descriptions are mapped to attributes and imported from columns A, B, and C.
- Six class "B" requirements: B1, B2, B3, B4, B5, and B6. PUID, title, and text descriptions are mapped to attributes and imported from columns D, E, and F.
- Links are created between the following requirements:
  - A1 to B1 and B2. A1 owns B1 and B2 according to the hierarchy defined in the spreadsheet layout.
  - A2 to B3, B4, and B5. A2 owns B3, B4, and B5 according to the hierarchy defined by the spreadsheet layout.
  - A3 to B6. A3 owns B6 according to the hierarchy defined by the spreadsheet layout.

Importing to a Document

Summary

You can import an Excel file to a new RM document, or update requirements in an existing document. The requirements in the resulting document are arranged into rows and columns that match the original document. You can organize the resulting document down into chapters and sub-chapters by mapping the values in specific columns to chapter numbers and headers.

This option is especially useful for importing documents that have been exported from IBM Rational DOORS. You can recreate the DOORS data and and module structure by including DOORS object identifiers and numbers in the document.

Example: Importing from IBM Rational DOORS

The following sample Excel file is from an IBM Rational DOORS export. The Dimensions RM Excel import feature allows you to import content directly from this format.

	A	B	C	D
1	**Obj id**	**Object Numb**	**Chapter**	**Requirement**
2	SOW 356	1	Introduction	
3	SOW 357	1.0-1		These are the initial user requirements for the development of a new sports utility vehicle.
4	SOW 358	1.1	Schedule	
5	SOW 359	1.1.0-1		This module contains the user requirements for a new car to be commercially available by 1st
6	SOW 3	2	User types	
7	SOW 4	2.0-1		This section describes the nature of the users of
8	SOW 5	2.1	Nationalities	
9	SOW 6	2.1.0-1		The car will be used in the countries, UK, North America, Northern Europe, Australia & New
10	SOW 9	2.2	User sizes	
11	SOW 10	2.2.0-1		The car shall be suitable for people minimum and maximum sizes 1.2m to 2m weighing 35 kilograms
12	SOW 400	3	Target Users	
13	SOW 401	3.1	Types of user	
14	SOW 402	3.1.0-1		The system shall be aimed at both casual users

In this example:

- The **Obj id** column identifies each requirement. Once imported into Dimensions RM, each requirement will retain this identifier going forward. If the document already exists, you can optionally choose to replace the requirement attributes that map to columns in the document. In this case you can use the **Obj id** attribute as the value of this attribute will always match the **Obj id** column in the DOORS export.
- The ***Object Number*** column is used to create chapters and then organize each requirement into the appropriate target chapter. When you import the file, you can choose the column that will be used to sequence the document, and which character will be used as a separator. When importing from a DOORS export document, you can use the **Object Number** column to precisely re-create the module structure. If requirement are moved and the re-imported, the requirements will be moved in the corresponding Dimensions RM document however they will not be marked as changed.
- The ***Chapter*** column is used to then name those chapters, and the **Requirement** column contains the requirement descriptions.

Example 2: Importing to Multiple Classes

When importing to a document, you must include a column in the spreadsheet that will be used to identify the chapter, sub-chapter, and requirement number. For example, the source Excel file might look something like the following:

	A	B	C	D	E	F	G
1	**Object Number**	**Chapter Heading**	**Title**	**Paragraph ID**	**Title**	**Text**	**Paragraph ID**
2	1	General					
3	1.1	General one					
4	1.1.0-1		Title A3	A3 description			
5	1.1.0-2				Title B4	B4 description	
6	1.1.0-3		Title A5	A5 description			
7	1.1.0-4		Title A6	A6 description			
8	1.1.0-5		Title A7	A7 description			
9	1.1.0-6		Title A8	A8 description			
10	1.1.0-7				Title B9	B9 description	
11	1.1.0-8				Title B10	B10 description	
12	1.1.0-9				Title B11	B11 description	
13	2	Tests					
14	2.1	Tests one					
15	2.2	Tests two					
16	2.2.0-1				Title B15	B15 description	
17	2.3	Tests three					
18	2.4	Tests four					

In this example:

- Requirements can be created or updated for rows with values in either of the ***Title*** columns, with x.x.0-x numbers. The other rows are used only to define chapter breaks, numbers, and headings.
- The ***Object Number*** column is used to create chapters and then organize each requirement into the appropriate target chapter. When you import the file, you can choose the column that will be used to sequence the document, and what character will be used as a separator.
- The ***Chapter Heading*** column is used to then name those chapters.
- If the document already exists, you can optionally choose to replace the requirement attributes that map to columns in the document. When you do this, you must choose the column that will be used to find and match existing requirements. For example, if the value of the ***Title*** column for the requirements you want to update matches a corresponding *Title* attribute in Dimensions RM, then you can choose to use this column to identify the existing requirements.
- You can map columns to multiple classes of requirements. In this example, you would map columns C and D to "A" class requirements, and columns E, F, and G to "B" class requirements.

Importing Excel Files

To import requirements from an Excel file:

1 Make sure that the worksheets in the Excel file are laid out correctly for the type of import you want to do. See "Importing to a Single Class" on page 45, "Importing to Multiple Classes" on page 46, and "Importing to a Document" on page 46.

1 Click the **Import an Excel Sheet** option. The Excel Import dialog box appears.

2 In the **File Name** field, enter the path or browse to select the Excel file that you will import. The **Spreadsheet** list and **Excel Column List** field are automatically populated with data from the Excel file.

3 Under **RM Mapping**, choose a worksheet for which to configure the import from the **Spreadsheet** list. You can configure the import for multiple worksheets, in turn, and then import from all worksheets at one time.

4 Select the target **RM Class** for the requirements to be imported. Consider the following:

- If you are importing to a single class you only need to select a single class and then configure the attribute mapping for that class.
- If you are importing to multiple classes, you can configure import for multiple classes. Start by selecting one class from the **RM Class** list and configuring the attribute mapping for that class, then select another class from the **RM Class** list and configure the attribute mapping for that class.
- To import linked requirements as described in "Importing to Multiple Classes" on page 46, you must ensure that the spreadsheet is laid out in the appropriate way to trigger the creation of the relationship that you want. When you finish mapping columns to attributes and click the **Import** button, you will be prompted to confirm that you want to create the relationships. For example, if you map columns A-C to the RM requirements class called "design" and columns D-F to the RM requirements class called "defects," then you will be prompted to confirm that a relationship should be established between the imported "design" and "defect" requirements, with "design" as the primary class and "defect" as the secondary class in the relationship.

5 Using the lists under **Excel Column List** and **RM Attribute and Relationship List**, you will map columns in the Excel worksheet to attributes in RM. To do this:

a If the initial row in the Excel worksheet stores column headings, select the **First row as column heading** checkbox under **Excel Column List** to populate the list with the names of the headings.

b To map values from an Excel column to an RM attribute, select the column from the **Excel Column List** field, then select the corresponding attribute from the **RM Attribute and Relationship List** field, and click the right arrow button. The mapped pair now appears in the **Mapped List** field.

c Optionally, if the names of the columns and attributes you want to map are identical, click the **Auto Mapping** button to automatically generate the list of match columns and attributes. This only applies to identically named columns and attributes.

6 To limit the import to a specific range of rows in the Excel worksheet, enter kewords into the **Start** and **End** fields under **Import Area**. In this way, you can start the import with the row that includes the first instance of the keyword in the **Start** field,

and end the import with the row that includes the first instance of the keyword in the **End** field.

7 Similarly, you can further limit the import to include only those rows with instances of a specific keyword in them. To do this, enter the keyword in the **Keyword** field under **Import Area**.

8 If you are replacing the values for requirements that already exist in Dimensions RM, you must choose the attribute that should be used to locate the existing requirements. Select an attribute from the **Identify existing requirements by** list. In all requirements where the value of the selected attribute matches the value of a corresponding column in the Excel file, the requirement will be mapped to the spreadsheet row and new values from the spreadsheet will be imported. For example, if you know that an attribute called "ID" has remained consistent and has been used to identify requirements in both Dimensions RM and in the spreadsheet, then you might choose this attribute.

9 To import the data from Excel to a document in Dimensions RM, select the **Document** check box and complete the options as follows:

- Choose either **Create** or **Replace** depending on whether you will create a new document or replace the content in an existing document.
- If you are creating a new document, enter a new name in the **Name** field. If you are replacing content in an existing document, choose the document from the **Name** list. Optionally enter a description in the **Description** field.
- From the **Sequence Number** list, choose the column from the Excel worksheet that defines the chapter and requirement numbers for the requirements you will import. If you are creating a new document, the sequence of numbers in this column will generate new chapter breaks and number the requirements accordingly. See "Importing to a Document" on page 46.
- In the **Seperator** field, enter the character that has been used to separate digits in the numbering column in the Excel file. For example, if the numbers follow the sequence `1.1`, `1.1.1`, `1.1.2`, `1.1.3` etc. then enter a period `"."` in the **Separator** field.
- Under **Chapter**, from the **Title** list, choose the column from the Excel file that should supply the text for the chapter titles in the document. Then, select the column that should supply the chapter descriptions from the **Description** list. If you are replacing content in an existing document, this will result in the latest text from the these columns appearing in the document in Dimensions RM.

10 Click the **Import** button to start the import.

11 If you are importing requirements that have been laid out to trigger creation of relationships, you are prompted to confirm the relationships that you want to create. See "Importing to Multiple Classes" on page 46.

12 A Summary window displays that shows you the success and failure for each requirement you have attempted to import, as well as the class, spreadsheet, and row number corresponding to each.

Importing a New Word Document

To import a new Word document:

1 Click **Import a new Word document** on the **Choose an existing draft document or import a new Word document** screen.

The **Choose the Import Template and Word Document to import** screen opens.

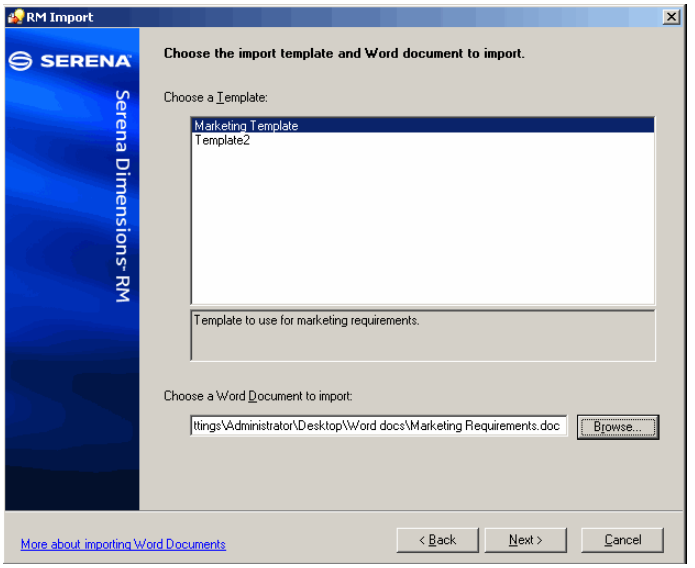

Figure 2-2. Choose Import Template and Word Document to Import

2 Select a template from the **Choose a Template** list.

The template description the administrator provided (if any) when he or she created the template appears in the field below the list.

3 In the **Choose a Word Document to Import** field, browse to the Word document you want to import.

4 Click **Next**. The preview screen opens. The **Parsing Word Document** dialog opens on top of the preview screen, and displays the progress of the parsing. When the parsing is complete, click **Close**.

NOTES

- You could see warnings that default values are being set. These values are taken from the attribute rules that the administrator specified in the template.
- You could see warnings that the Description attribute could be missing formatting or images because it is not HTML-enabled. To enable the attribute for HTML, an administrator must edit the attribute definition in Class Definition.
- You can cancel the parsing at any time by clicking the **Cancel** button. This abandons the parsing and redisplays the **Choose the Import Template and Word Document to import** screen.

The document structure is displayed in the tree pane.

5 Proceed to "Working in the Preview Screen" on page 52.

Importing a Draft Document

To import a draft document that you saved earlier:

1 Click **Import a Draft Document** on the **Choose an existing Draft document or import a new Word Document** screen.

2 The **Choose an existing draft document to import** screen opens.

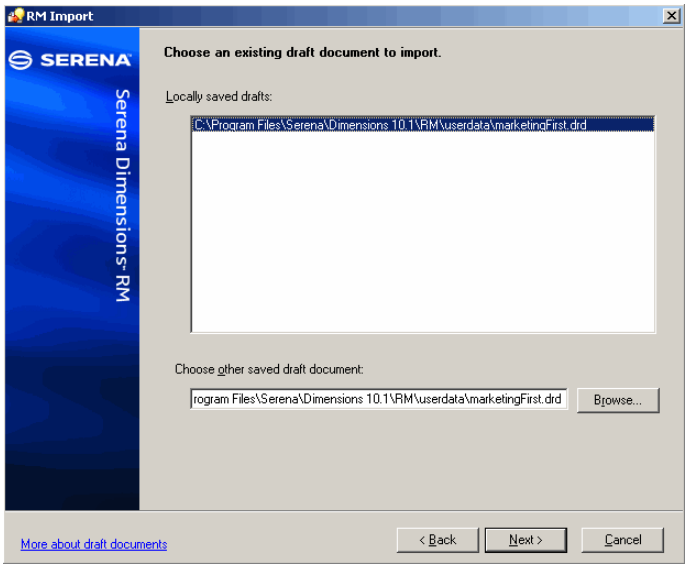

Figure 2-3. Choose an Existing Draft Document to Import

3 Select a draft from the **Locally saved drafts** list. These are drafts (`.drd` documents) that you saved to the `userdata` folder or to **My Documents**.

4 If you saved a draft to some other folder, click the **Browse** button under **Choose other saved draft document,** navigate to the draft, and click **Open**.

5 Click **Next**. The preview screen opens. Proceed to "Working in the Preview Screen" on page 52.

Working in the Preview Screen

In the preview screen, you can see a preview of the draft document. In this page, you can edit and rearrange requirements and chapters.

NOTE If the Word document is set to "Protected" mode with a read-only restriction, an error message could be displayed in the preview screen. To prevent this problem, copy all of the information from the protected Word document and paste it into a new Word document.

Understanding the User Interface

The preview screen includes the components described in the following table and shown in the illustration that follows.

Component	Description
Tree Pane	Displays the structure of the parsed document in a tree-like structure. The following icons represent the objects in the tree: ▪ Document ▪ Chapter ▪ Requirement **NOTE:** If the administrator did not specify a rule for the Title attribute, the first 30 characters are captured as the title. If the value of any mapped attribute exceeds the maximum number of characters specified for the attribute in the Class Definition tool, then a length exceeded icon is displayed to the left of the requirement description in the tree pane. If you click the requirement, you can identify the offending attributes by a red exclamation mark. Shorten the text as needed for these attributes. If you do not shorten the text, the server truncates the value of the attribute during the import.
Tree Commands	Allows you to create a new requirement or chapter, delete a chapter or requirement, and move a requirement or chapter using the drag-and-drop operation.
Content Pane	Displays the object that is selected in the tree, and allows you to edit it. **NOTE:** For requirements, the content pane only displays the attributes that are specified in the template.
"More options" Commands	Allow you to view the source document that was parsed, append the contents from another saved draft into this document, save this draft document, import the content of this document into a document that has already been imported to Dimensions RM, open the Help topic for this screen, and view information about RM Import.

Figure 2-4. Import Preview Page

Viewing the Source Document

You can open the source document that was parsed to compare it to the draft document.

To view the source document that was parsed:

- Click the **More Options** button, and then click **View Source**.

  The Word document opens.

Appending Another Draft Document into This Document

You can insert the contents of another draft document into the draft document that is to be imported. This is useful in situations where you are working with a very large document and want break it into smaller documents and then merge the results into one document.

To append the contents of another draft document:

1. Click the **More Options** button, and then click **Append contents from draft**.

The **Open** dialog opens to the `userdata` folder.

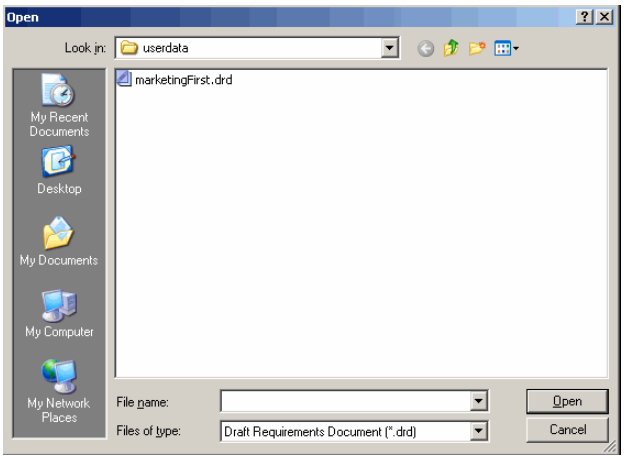

Figure 2-5. Open

2 Select or browse to and select the draft document that you want to insert, and click **Open**.

3 The content of the second document is appended to the first document.

NOTE A draft document is saved as a Draft Requirements Document, with a `.drd` extension.

Saving a Draft

After working on a draft document, you can save it and then return to it later to finish it.

To save a draft document:

1 Click the **More Options** button, and then click **Save contents to draft**.

The **Save As** dialog opens to the `userdata` folder.

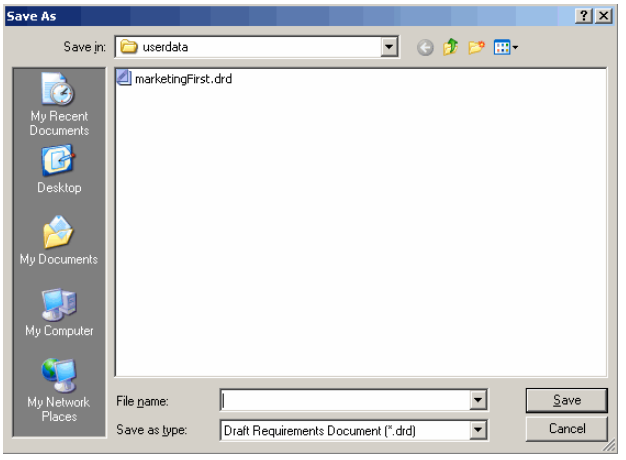

Figure 2-6. Save As

2 To save this draft document, type the name of the draft document in the **File name** field.

3 Click **Save**.

NOTE A draft document is saved as a Draft Requirements Document, with a `.drd` extension.

Importing a Document

IMPORTANT! Before you import a Word document, save the document as HTML and examine the results. This is the way the document will be displayed in RM Browser after it is imported. If you see any formatting problems that are unacceptable (for example, problems with lists, bullets, and fonts), adjust the styles used in the Word document until the results are satisfactory.

When you are satisfied with a document, you import it to Dimensions RM. After a document has been imported, you can continue to work on the document in the Documents View perspective of RM Browser.

IMPORTANT! Microsoft Word uses unique, proprietary styles and formatting; therefore, the styles and formatting of the Word document (for example, some lists, bullets, and fonts) are not necessarily preserved in Document View. However, RM Import always attempts to import all text to prevent data loss.

To import a draft document:

1 Click the **Import** button. The **Document Name** dialog opens.

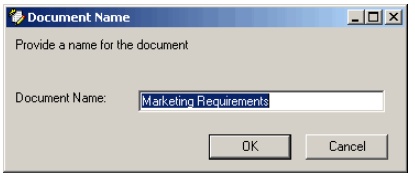

Figure 2-7. Document Name

NOTE If you receive an HTTP 413 error when you press the **Import** button, contact your system administrator. The *Serena Dimensions RM Administrator's Guide* contains a procedure for resolving HTTP 413 errors in RM Import.

2 In the **Document Name** field, type a name for the document, and then click **OK**.

3 The **Saving to RM** dialog displays the progress of the import.

NOTE The **Saving to RM** dialog displays the progress of the import.

Error Handling

Note the following about error handling during the import process:

- For each chapter and requirement that is imported, the chapter or requirement icon changes to .
- If the import fails for any requirement, the requirement icon changes to , and the import stops.
- When the import stops, the **Import** button changes to a **Retry** button. After you correct the offending requirement, and click the **Retry** button, the **Appending to RM** dialog opens. If the import succeeds, the rest of the chapters and requirements are appended to the incomplete document that was imported during the first import attempt.

NOTE In the following illustration, the selected requirement was not imported because the mandatory Developer attribute contains no data.

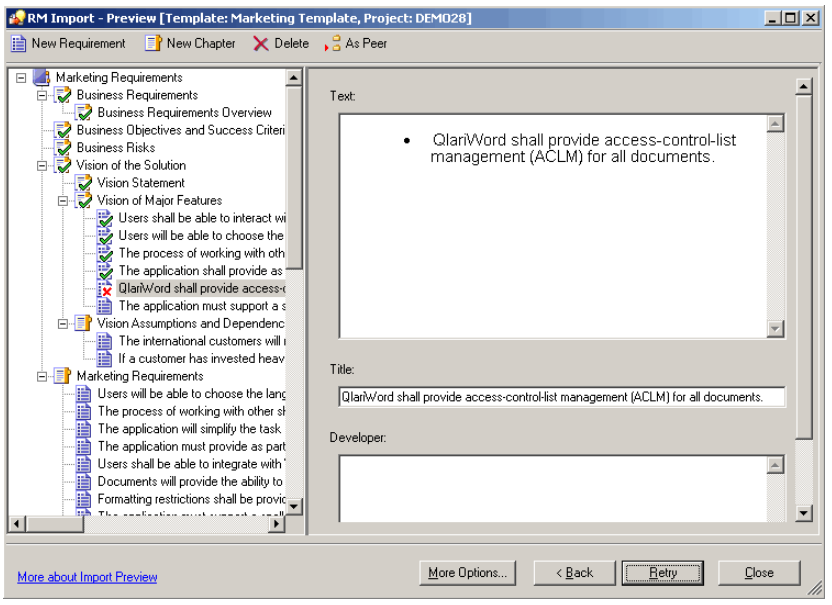

Figure 2-8. Post-Import Preview Page

Importing into an Existing Document

This option is similar to the **Save contents to draft** command, except that you are importing the document into a document that has already been imported into Dimensions RM. This is a way to add new requirements into existing documents.

To import a draft document into an imported document:

1 Click the **More Options** button, and then click **Import into existing document**.

The **Select Document** dialog opens.

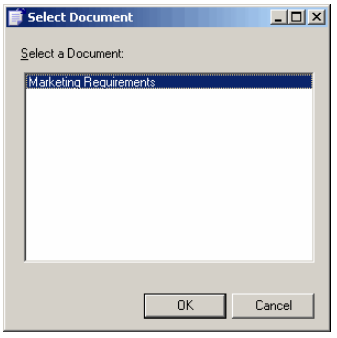

Figure 2-9. Select Document

2 Select the document into which you want to import the current document and then click **OK**.

The **Appending to RM** dialog shows the progress of the process.

3 Click **Close** when the process is completed.

Editing a Document

In the content pane, you can edit the chapter title and description, and requirement title and attributes.

To edit a document:

1 Select the chapter or requirement in the tree pane.

2 In the content pane fields, edit the information you want to change.

NOTE The chapter or requirement title changes in the tree pane after you click another object in the tree pane.

Working in the Tree Pane

The tree pane displays the structure of the parsed document. In the tree pane, you can add new requirements and chapters to the document, delete chapters and requirements, and use the drag-and-drop operation to move chapters and requirements.

Adding a New Requirement or Chapter

The preview page respects the rule that a chapter can only contain requirements from one class. The attributes that the administrator specified in the template are displayed in the content pane.

To add a new requirement or chapter:

1 Select the requirement or chapter that is to precede the chapter or requirement you are adding.

2 Do one of the following:

- Click the **As Peer** button

if you want to create the requirement or chapter at the same level as the target requirement or chapter.
- Click the **As Child** button

if you want to create the requirement or chapter one level below the target requirement or chapter.

NOTE Click the **As Peer** or **As Child** button to toggle between the two functions.

3 Click the **New Requirement** or **New Chapter** button at the top of the tree pane.

The new requirement or chapter is added.

4 Click the **New Requirement** or **New Chapter** object in the tree pane.

5 Fill in the fields in the content pane.

NOTE The **Description** field for a chapter is optional.

Moving a Requirement or Chapter

To move a requirement or chapter:

1 Select the requirement or chapter that is to precede the chapter or requirement you are moving.

2 Do one of the following:

- Click the **As Peer** button

if you want to move the requirement or chapter to the same level as the target requirement or chapter.
- Click the **As Child** button

if you want to move the requirement or chapter one level below the target requirement or chapter.

NOTE Click the **As Peer** or **As Child** button to toggle between the two functions.

3 Use the drag-and-drop operation to move the requirement or chapter to the target requirement or chapter.

Deleting a Requirement or Chapter

You can delete a requirement or chapter, but not a document. In Documents View, you can delete a document that has been imported to [Product Name Short No Marks].

To delete a requirement or chapter:

1 Select the requirement or chapter.

2 Click the **Delete** button at the top of the tree pane.

CAUTION! You cannot undo a delete operation. Serena recommends that you either save it as a draft document or reparse if you need to make changes later.

Chapter 3

RM Concept

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Overview

RM Concept is the Serena® Dimensions® RM tool that provides a comprehensive interface to the Dimensions RM project for finding, retrieving, editing, and storing your requirements data. Use RM Concept to create, find, and modify project elements. You can create new objects or collections, link objects, focus or expand objects, and generate reports from scripts.

RM Concept works with several categories of information, as described in the following table.

Category	Description
Objects	An object is a unit of information assigned to a class. You can create, find and modify objects, track object ancestries, link objects to other objects and to collections, focus objects and display object associations. You can also add and review comments on selected objects in RM Concept. Refer to "Working with Objects" on page 91 for details.
Forms	Form view allows you to view or edit objects and links. In form layout mode, you can create new forms, and modify existing forms. Refer to "Working with Forms" on page 66 for details.
Grids	Grid view allows you to view or edit many objects or links in one screen. See "Working with Grids" on page 82 for details on using and customizing the grid display.
Scripts	Scripts are used in RM Concept to retrieve data and format the view of the retrieved data. The data are originally displayed in a grid or spreadsheet, but can be saved to multiple formats. Use RM Concept to find, create and modify scripts. Refer to "Working with Scripts" on page 113 for details.
Collections	Collections are used to group objects from one or more classes. You can find, create and modify collections within RM Concept. You can also link objects to a collection to create convenient groupings. Refer to "Working with Collections" on page 103 for details.
Change Management	You can submit change requests against selected objects and propose new objects with change management functions. You can also use RM Concept to review requested changes. Refer to "Working with Change Management" on page 109 for details.

RM Concept User Interface

RM Concept provides a graphical user interface that gives you access to Dimensions RM project elements. Inside the main RM Concept window, nearly all data is presented in forms or spreadsheet-like grid views. The menu bar gives you access to most of the operations supported by RM Concept. The toolbar provides quick access to commonly used operations. Right mouse clicks in workspace areas cause RM Concept to display popup menus with view-specific operations.

Grid and Form Views

The screen images in the following illustrations show the form and grid views within the RM Concept window. The form view provides one-at-a-time object viewing and data entry. The grid view is a spreadsheet-like view of object content in which you can view, sort, and edit data. A Rolodex® presented in both form and grid views allows you to navigate to a specific object. Left clicking on the bottom Rolodex card moves the current selection forward; clicking the upper card moves the current selection backward.

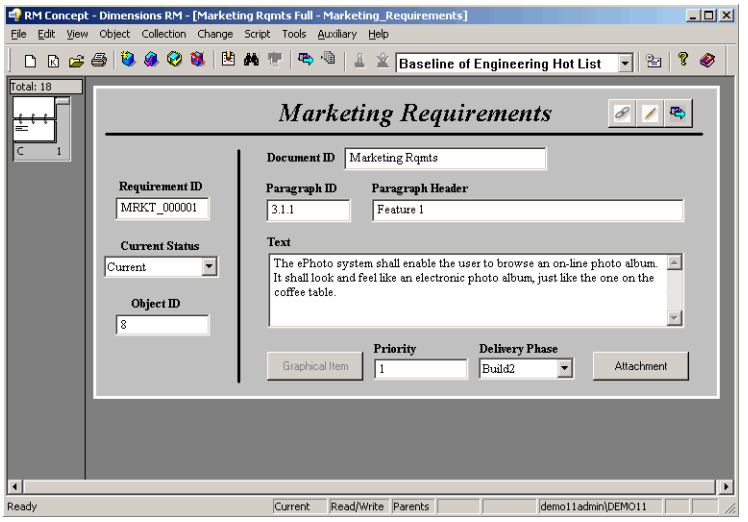

Figure 3-1. RM Concept Form View

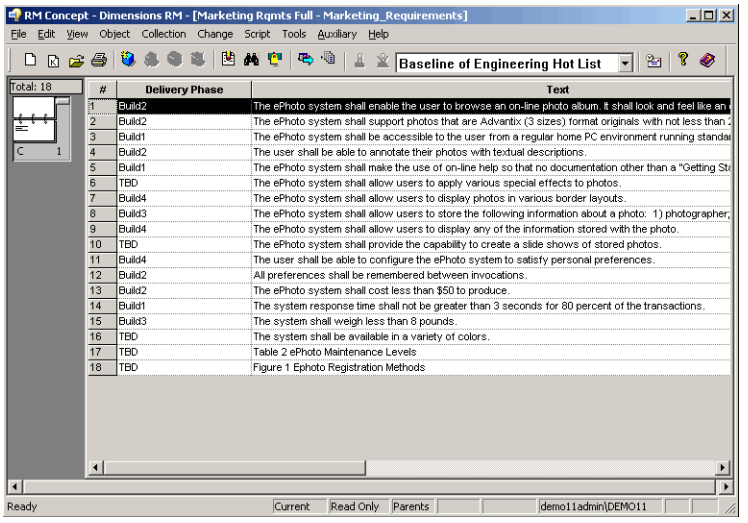

Figure 3-2. RM Concept Grid View

When you are working with relationships, RM Concept uses a split workspace with one part of the workspace showing the primary object(s) and the other part of the workspace showing the secondary object(s). You can control this display in a number of ways. A tool option controls whether the split workspace is organized vertically (with the primary object normally on the left side and the secondary object shown on the right) or horizontally (with the primary object shown on the top and the secondary object on the bottom). The organization shown in the following illustration is top/bottom.

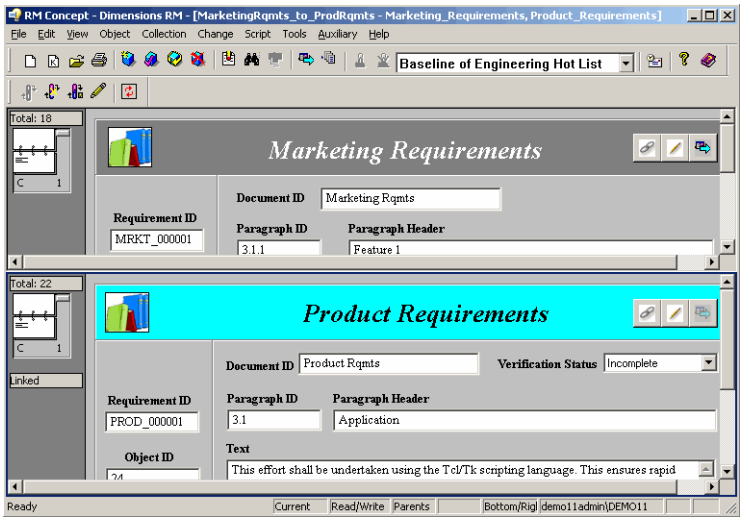

Figure 3-3. RM Concept Split Workspace for Relationship Form

To control the workspace organization for relationship operations in either form or grid view:

1. Select **Options** from the **Tools** menu.
2. Click the **Options** tab.
3. Choose either top/bottom for a horizontal organization or left/right for a vertical organization in the **Display** box.

You can resize one of the parts of the split workspace by dragging the line separating the two parts of the display. Enlarging one part will decrease the space available for the other part.

To change sizes:

1. Place the cursor on the line separating the two parts of the display. The cursor will change from an arrow to a pair of lines with small arrows pointing in the directions of the two parts of the workspace.
2. Hold the left mouse button down and drag the line to enlarge the desired part. If you want to enlarge the top part, drag the line down. Drag the line up to enlarge the bottom part.
3. Release the mouse button to stop the resize operation.

Visual Status Indicators

Several visual indicators give you additional information about the objects presented on the screen:

- The Rolodex indicates the total number of objects above the "card" and the current "card number" at the lower right. When the Rolodex is "pointing" to an object that has been captured from a document, a "C" appears in the lower left corner of the Rolodex.
- When the object you're viewing has links, comments, or pending change requests visual indicators may be included in both form and grid views. These indicators must be explicitly added to the form layout or grid column display selections.
- The status bar at the bottom of the window provides information about the currently selected object. The status bar is displayed by default. To hide it, uncheck **Status Bar** on the View menu. To display it, check **Status Bar** on the **View** menu.

Figure 3-4. Status Bar

From left to right, the status indicators display:

- Tool messages about most recent operation
- Object status information
- Loaded objects editing status
- Whether the loaded object has ancestor objects
- Whether the loaded object has descendant objects
- Which pane is active when in split screen mode
- Username\project for the current RM Concept session
- Caps Lock key indicator
- Numeric Lock key indicator

Menus

- The **File** menu provides operations that control interactions with the tool at a gross level. These operations include **Open** to allow you to choose the kinds of information that you will be working with, new form creation, layout operations to control grid displays, as well as the CSV import and batch update Wizards.
- The **Edit** menu offers the standard cut/copy/paste operations as well as object (un)locking for edit, and e-mail registration.
- The **View** menu provides operations that control the workspace appearance and its modes of object manipulation.
- The **Object** menu provides general manipulation operations, such as new, update, replace, and delete on objects that you are viewing in the workspace. Relationship operations such as creating and breaking links are also available from the Object menu. A set of object association operations is also available.
- The **Collection** menu offers operations on collections such as creating, deleting, and manipulating collection hierarchies. Both manual and automated linking operations are included.
- The **Change** menu items provide access to Change Management functions such as proposing and reviewing changes and Engineering Change Proposals.
- The **Script** menu offers creation, editing, and execution operations for scripts.

- The **Tools** menu provides a way to launch other Dimensions RM tools, including RM Word, Class Definition, and RM Manage. Tool options configuration is also available from the **Tools** menu.
- The **Help** menu provides access to online help documentation as well as the about menu, and a link to the technical support web site.

Open Dialog

When you launch RM Concept, your first action is to choose the class, form, relationship, script, or collection with which you want to work. The **Open** dialog opens when you launch RM Concept and whenever you select **Open** from the **File** menu. This dialog provides a navigable outline-style list of all classes, class and relationship forms, relationships, collections, and scripts defined for your project. For an illustration of the **Open** dialog, see "Opening Class Forms" on page 67.

The **Open** dialog offers additional options for controlling the initial presentation of forms and scripts. Form options work with class forms and allow you to pre-select objects with a filter, and to specify startup with a grid view as opposed to a form view. If you do not select a filter, RM Concept opens a blank class form to allow you to specify criteria for selecting objects within the class. If you choose a filter and the **Open in Grid Mode** option, RM Concept opens with a grid view of the selected objects.

Working with Forms

Forms and grids are two primary ways of viewing and manipulating object content. A form view of an object contains fields for displaying and editing the object's attributes. You can create and modify forms and add graphics to make them more attractive and easier to use.

When needed, RM Concept generates a class form containing data entry fields for each class attribute. You can create your own customized forms based on the generated form and designate them as your default view for the associated class. Project administrators can designate a user-defined form as a project-wide default. User-designated default forms take precedence over project-wide default forms; RM Concept will use your user-designated default forms instead of project-wide default forms when the default form view is needed. Only the generated class form is automatically updated when class definitions are changed. User-defined forms must be manually updated with new attribute fields.

RM Concept also automatically creates a form for each relationship consisting of the generated forms corresponding to the primary and secondary classes of the relationship. Default forms for relationships are derived from the corresponding default class forms. You can create user-defined relationship forms by choosing your own mixture of primary and secondary class forms.

Opening Class Forms

1 Select **Open** from the **File** menu, or click the **Form Open** button . The **Open** dialog opens.

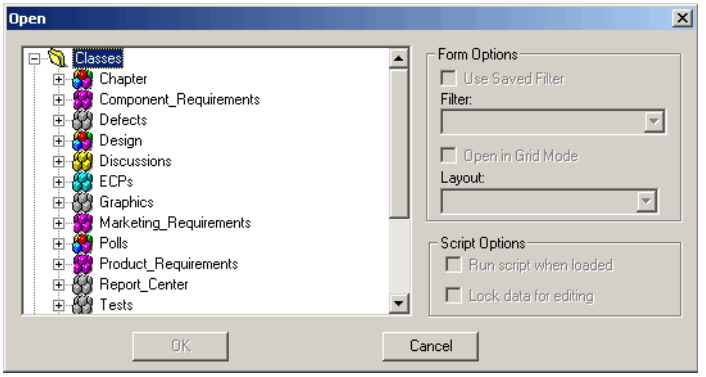

Figure 3-5. File Open

2 Expand the **Classes** folder from the list at the top left of the dialog by clicking on the **+** to the left of the folder.

The dialog displays the list of classes defined for the project. Expand the class that you want by clicking +. The dialog displays the names of forms defined for that class, including any user-defined forms, as well as the generated form for each class (if project administrators have not protected the generated form from view).

NOTE For projects converted from earlier versions of Dimensions RM, access to the generated form must be explicitly granted. By default, the generated form is not visible to non-administrator users).

3 To open a form, double-click the form name or select the form name and click **OK**.

The fields in the **Form Options** area of the dialog allow you to choose a filter that will select objects to be loaded when the form is opened. Select **Use Saved Filter** to select a filter. (Refer to "Using Class Forms to Find Objects" on page 70 for detailed procedures on how to create and use filters.) When the form is opened, the filter will be used to select the objects specified in the filter definition.

The class can also be opened in grid mode. Select the **Open in Grid Mode** check box and select a layout to open the form with the grid configuration based on the selected layout. Refer to "Working with Grids" on page 82 for detailed procedures on how to use grids. If no layout is selected, the default layout for the form is used. Using **Open in Grid Mode** works best when you have a filter selected. If no filter is selected, the form is displayed first until you have selected data through an *ad hoc* query. Once you select data, the grid is displayed.

The following illustration shows a class form in the RM Concept window that was opened without a filter or layout selection. The form is initially presented in a “find” mode to enable you to perform an *ad hoc* query. Refer to "Using Class Forms to Find Objects" on page 70 to find out how to perform *ad hoc* queries. You can set this form as your default form for the class by right clicking in the dark area below the **Complex** button. In the context menu, select **Set Form as Default**. If you select this

operation, the current form is displayed as your default form for the class on subsequent operations.

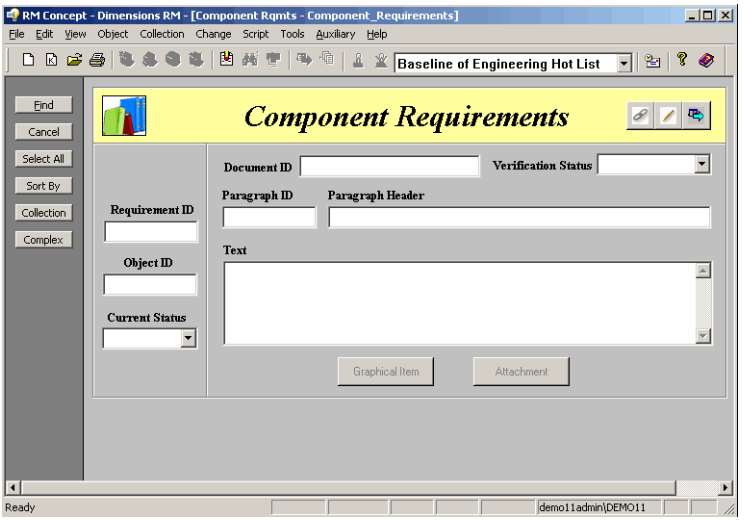

Figure 3-6. Form in Find Mode

Opening Relationship Forms

Relationship forms work like class forms. In fact, a relationship form is really just two class forms displayed together in the workspace. Most operations work on the class forms in a relationship form just as they do on single class forms.

1. To open a relationship form, select **Open** from the **File** menu, or click the **Form Open** button . The **Open** dialog opens.
2. Expand **Relationships** in the list shown in the upper-left of the dialog.
3. Expand a relationship from the expanded list of relationships.
4. Double-click a relationship form name or select a relationship from the expanded list of relationship forms and click **OK** to open the form in the workspace.

When the relationship form is opened, its two component class forms are displayed in the "find" mode. These class forms are representing possible linked pairs of objects. They can be used like regular class forms to locate and display objects of their respective classes. See "Using Relationship Forms to Find and Link Objects" on page 76 for instructions on how to find linked objects and how to create and break links between objects.

Operations on Forms

RM Concept provides a set of operations for managing forms from within the form view. Many of these operations are only available when the form is not in "find" mode.

Changing to a Different Class Form

To change the RM Concept form view to a different form for the same class:

1. Right-click in the RM Concept workspace away from text entry fields.
2. Select **Change Class Form**.

3 Select a form from the drop-down list in the form selection dialog.

4 Click **OK** to switch to the selected form.

Changing the Form Name

To change the name of the form you are currently viewing:

1 Right-click in the RM Concept workspace away from text entry fields to obtain the form operations popup menu.

2 Select **Change Form Name**.

3 Enter a new name in the **Rename Form** dialog.

4 Click **OK** to save the new form name.

Changing Form Security

To change access rights for the form that you are currently viewing:

1 Right-click in the RM Concept workspace away from text entry fields to obtain the form operations popup menu.

2 Select **Modify Form Security**.

3 In the **Security** dialog, repeat the following steps as needed:

   a Select a group or a user.

   b Left-click each privilege to enable or disable access.

4 Click **OK**.

Removing Forms

To remove the form that you are currently viewing from the project:

1 If the form is empty, click **Find**.

1 Right-click in the RM Concept workspace away from text entry fields.

2 Select **Change Class Form**. The **Form Selection** dialog box opens.

3 Select a form and then click **OK**.

4 Right-click in the RM Concept workspace away from text entry fields.

5 Select **Remove Form**.

6 When prompted, click **Yes** to confirm the removal.

Setting the Form As Your Default

Your default form is used when RM Concept must determine how to display data for you, such as when you open a collection or review change proposals.

To designate the form that you are currently viewing as your default:

1 Right-click in the RM Concept workspace away from text entry fields to obtain the form operations popup menu.

2 Select **Set Form As Default**.

Switching To Grid View

To switch from the form that you are currently viewing to a grid view:

- Do one of the following:
  - Select **Grid** from the **View** menu
  - Right-click in the RM Concept workspace away from text entry fields to obtain the form operations popup menu, and select **Show Object List**.

Swapping Relationship Primary and Secondary Forms

When viewing a relationship in RM Concept, the primary class form is normally displayed in the top/left view and the secondary class form displayed in the bottom/right view.

When you are creating links, the create link operation links works on a single selection from the top/left view and multiple selections from the bottom/right view. With the primary object in the top/left and secondary in bottom/right, you can create links between one primary and any number of secondary objects. With the ability to swap the relationship view, you can create links between one secondary and any number of primary objects.

To swap the view:

- Select **Swap Object Views** from the **View** menu.

Using Class Forms to Find Objects

When you open a form using **Open** from the **File** menu, RM Concept presents the form in a "find" mode. The main window displays the form as well as a set of buttons to the left as shown in Figure 3-6. Use the **Select All** button to retrieve all objects of the form's class. You can use the other buttons as well as the fields in the form to create selection criteria for performing *ad hoc* queries to select or filter data before viewing or modification.

Creating a Simple Form Filter

If you have just opened the form, you need to specify the data to be located and displayed. Type in or select the attribute values to be used as selection criteria into the form and click **Find**. This will load the Rolodex with objects that match the selection criteria.

If you are *already* viewing data in a form you must first put the form in to "find" mode:

To put the form in "find" mode:

1 Select **Find** from the **Edit** menu, or click the **Find** button .

2 If the form has been used to filter data, values for previous selection criteria may still be in the form. To erase them, select **Clear** from the **Edit** menu, or click the clear toolbar icon . The form is cleared and all fields will accept input.

3 To specify the data to be displayed, type in or select attribute values to be used as selection criteria into the form and click **Find**. This will load the Rolodex with objects that match the selection criteria.

For example, a simple query might be something like finding all requirements objects that contain the word "response." To create this query in a form such as is shown in Figure 3-6, type the string "*response*" (without the quotation marks) into the field labeled **Text** and click the **Find** button.

Saving and Reusing Form Filters

To save a set of selection criteria:

1. Select **Save As** from the **File** menu.
2. Enter a name in the **Save Filter** dialog.
3. Click **OK**.

To retrieve a saved filter:

1. Select **Filter > Load** from the **File** menu.
2. Select **Form Filters**.
3. Choose the filter by name from the drop-down list of form filter names.
4. Click **OK** to load the form with the filtered data.

Wildcard Characters For Text Attribute Selection Criteria

Two wildcard characters can be used in specifying patterns in selection criteria for text attributes. The asterisk '*' is used to indicate a substring of any number of characters. It is only valid when doing direct equality (LIKE) or inequality (NOT LIKE) tests. The *per cent* symbol '%' is used to indicate a single character. For example, in a LIKE test, the pattern "abc*" matches "abc", "abcd", "abcxyz" and any other text attribute value starting with the string "abc". The pattern "abc%" matches only four-character sequences beginning with "abc" such as "abcd", "abcz", or "abc1", but does not match "abcde" or any other string longer or shorter than four characters.

Selecting Current Objects Only

For some searches, you will want to view the entire history of each object selected. For others, you may only be interested in the current version. The View menu offers a check box item named **Current Object Only**. When checked, RM Concept restricts *ad hoc* queries to the current version of each object. When unchecked, RM Concept retrieves all versions of the object.

Adding Sort Criteria to the Selection Criteria

You can sort the results in alphabetical or Dewey decimal order based on any attribute value.

1. Click **Sort By** on the form in find mode.

2 The **Sort Selection** dialog opens.

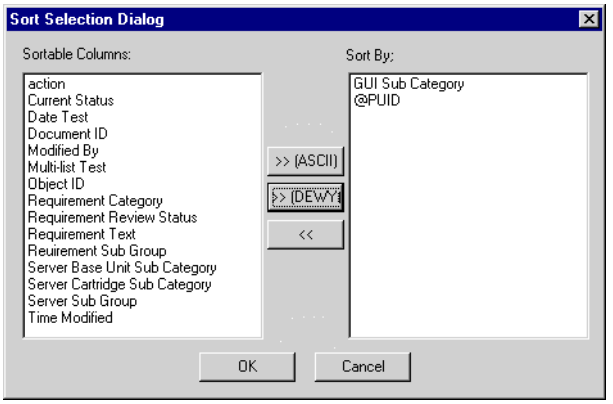

Figure 3-7. Sort Selection

3 To add a column to the sort criteria, select an attribute and click >>**(ASCII)** or >>**(DEWEY)**. An ASCII sort is a simple alphabetical sort. A Dewey sort can be used to sort formatted alphanumeric attributes such as paragraph numbers. If you choose a column that is of the Date data type your results will be sorted in date order regardless of whether you choose ASCII or Dewey for the column.

4 To remove an attribute from the sort criteria, select an attribute and click **<<**. The sort criteria will be modified based on the order in the **Sort By** list.

5 Click the **Find** toolbar button to start a new find operation. If you change your mind before executing the new find operation, click **Cancel** to return to your previous find results.

Adding a Collection to the Selection Criteria

You can combine collection membership with attribute-value based searches using the **Collection** button. The **Collection in Filter** dialog allows you to select specific collections to be included in your search. The results will include objects that match your attribute selection criteria, and that are linked to any of the collections that you specify.

To include a collection in your selection criteria:

1 Click the **Collection** button on the form in find mode.

The **Collection in Filter** dialog opens.

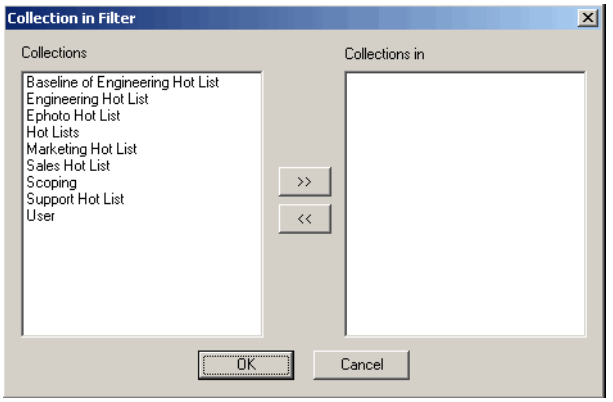

Figure 3-8. Collection in Filter

2 Select the collection from the collections list on the left.

3 Click the >> button to add the collection to the selection criteria displayed on the right side of the **Collection in Filter** dialog.

4 Click the << button to remove the collection from the selection criteria.

5 Click **OK** to return to the form in find mode.

Before or after you choose collections, you can add specific attribute values in the form fields as needed before clicking the **Find** button on the form. RM Concept produces a result set containing any objects matching your field criteria that are linked to any of the collections you selected.

Filtering Data Using the Complex Find

You can construct more specific *ad hoc* queries using the **Complex Find** button, which invokes the **Edit Filter** dialog. You can use this dialog to construct logical expressions to be used as filters to constrain searches using attribute selection criteria, relationship link information and collection link information.

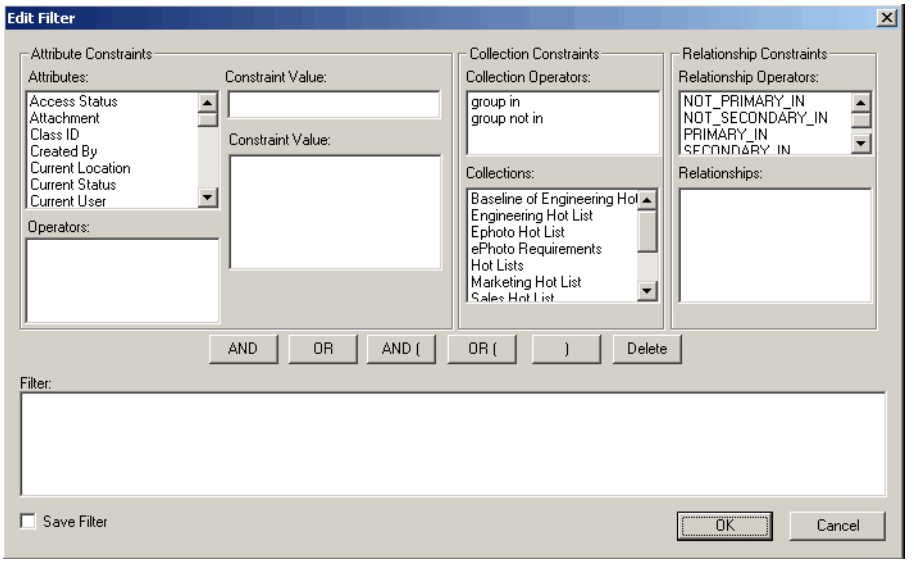

Figure 3-9. Edit Filter

There are four main sections in the **Create Filter** dialog:

- **Attribute Constraints**, **Collection Constraints**, and **Relationship Constraints**
- Logical operators (**AND**, **OR**, **AND (**, **OR(**, **)**, and **Delete**)
- **Filter** box
- Operations (**Save Filter**, **OK**, and **Cancel**)

To construct a logical expression to be used as a filter, you combine one or more attribute, collection, or relationship constraints with logical operators (AND and OR). The resulting filter is a complex logical expression. For example, you might specify a filter to select first all objects of a particular class having certain values in an attribute, then any of those objects not linked to a particular collection, and finally, any of those objects, which happen to be secondary in a specific relationship. The resulting subset of objects is precisely determined using a filter. The following is an example of such a filter as it would appear in the filter display box:

Status = Current
AND group in ('baseline 17')
AND SECONDARY_IN SystemReqts_verified_by_Test

Attribute constraints describe desired attribute values or combinations of values to be selected. To specify an attribute constraint, choose the attribute name from the list labeled "Attributes," an operator from the Operators list, and then specify a value or a list of values in one of the constraint value boxes.

The attribute names are those defined for the class in the project schema. To define attribute constraints, you must know the data type of the attribute so that you can properly specify operators and constraint values. Specifying the constraint value requires either typing one or more values into the one-line box or, when the attribute that you have chosen is of a list type, selecting from a list of possible values in the larger box. The following table lists the attribute types that are used in Dimensions RM project schemas and identifies the constraint operators that can be used with each.

Attribute Type	Operators	Notes
Action	INITIALIZED, NOT INITIALIZED, =, !=	
Alphanumeric	=, !=, <, >, <=, >=, INITIALIZED, NOT INITIALIZED, in, not in	Mathematical operators apply to ASCII sort order
Date	=, !=, <, >, <=, >=, INITIALIZED, NOT INITIALIZED, in, not in	Mathematical operators apply to DATE sort order
Graphic		Not supported.
List	INITIALIZED, NOT INITIALIZED, in, not in	
Numeric	=, !=, <, >, <=, >=, INITIALIZED, NOT INITIALIZED, in, not in	Mathematical operators have their normal mathematical meanings.
Text	INITIALIZED, NOT INITIALIZED, like, not like, in, not in	The * character is a wildcard for any set of characters for the "like" or "not like" operator. The % character is a wildcard for a single character.

Collection constraints describe desired collection memberships to be used when selecting objects on which to operate. Two operators, "group in" and "group not in," enable you to specify whether the desired objects should be in or not in a particular collection. The collections listed in the Collections box below the operators are those defined for your project.

Relationship constraints describe desired arrangements of objects and the links among them. In Dimensions RM, relationships are defined as connecting a primary and a secondary class. In a relationship, the primary class is considered the origin of a directed line running to the secondary class. Links are said to originate at the primary object and terminate at the secondary object. The relationship operators, "PRIMARY_IN" and "SECONDARY_IN" are used to identify objects that are either at the origin or the terminus of a link. The relationship operators "NOT_PRIMARY_IN" and "NOT_SECONDARY_IN" identify objects that may participate in such links, but do not. These operators are useful in locating objects that you are interested in linking. For example, given a relationship that connects system requirements to test cases, you could use these "not" operators to find requirements that are not yet associated with test cases.

The relationship names listed in the relationships box below the relationship constraints box are those defined in your project schema, with the addition of two special ones, "immediate" and "source." Both of these relationships are used in locating versions of objects. The "immediate" relationship refers to the immediate predecessor or successor of an object, and "source" refers to the original object in a chain of versions. To use these relationships in constructing constraints, combine them with operators as follows:

PRIMARY_IN immediate identifies versions of objects having descendants.
NOT_PRIMARY_IN immediate identifies versions of objects without descendants (most recent versions).
SECONDARY_IN immediate identifies objects with ancestors.
NOT_SECONDARY_IN immediate identifies objects without ancestors.
PRIMARY_IN source identifies objects without ancestors.
NOT_PRIMARY_IN source identifies objects with ancestors.
SECONDARY_IN source identifies objects without descendants.
NOT_SECONDARY_IN source identifies objects with descendants.

To save a complex filter:

You can save filters that you create using complex finds as RM Explorer/Complex filters by checking the **Save Filter** check box in the **Create Filter** dialog. After you click **OK**, you are prompted for a filter name and can also set the access controls on the filter. When you complete the filter save, the complex filter will be executed.

Filters created in this way are known as complex filters. Form filters that you create in RM Concept by saving *ad hoc* queries as described in "Creating a Simple Form Filter" on page 70 are handled differently from complex filters (see "Saving and Reusing Form Filters" on page 71).

To load a saved filter:

1. Select **Filters > Load** from the **File** menu.
2. Select either the **Form filter** or **RM Explorer/Complex**.
3. Choose a filter by name.
4. Click **OK**.

   For form filters, the search criteria will be loaded into the form. Click **Find** to execute the form filter query. For complex filters, the filter will be automatically run when you click **OK**.

NOTE The filters that are displayed in the filter list in the **Filter Selection** dialog (**File > Filters > Load**) may differ from the filters that are displayed in the **Remove Filter** dialog (**File > Filters > Remove**).

A filter is composed of requirements from one class only. Therefore, when you try to load a filter, the list contains only the filters that apply to the class you are currently working with.

In contrast, when you try to remove a filter, the list includes all filters associated with the project, not just those that apply to the class you are currently working with.

To modify a complex filter:

1. Select **Filter > Load** from the **File** menu.
2. When the filter has loaded and executed, click **Complex**.
3. Your complex filter search criteria will appear in the **Edit Filter** dialog (Figure 3-9).

4 Modify the search criteria as described in "Filtering Data Using the Complex Find" on page 73.

5 Be sure to select the **Save Filter** check box at the lower left of the **Edit Filter** dialog.

You cannot save a filter that already exists; you must give it a new name. You can edit existing filters in RM Explorer.

Using Relationship Forms to Find and Link Objects

When you open a relationship form, RM Concept uses a split workspace to show you forms for both primary and secondary classes. These forms can be used independently to filter, locate, and display objects from the primary and secondary classes.

Finding Primary and Secondary Objects

The primary and secondary parts of the relationship form work just like class forms. You can perform ad hoc queries in both forms to locate objects. Refer to "Using Class Forms to Find Objects" on page 70 for details on finding objects with class forms.

Creating Links Between Objects

When RM Concept displays a relationship form, it also displays the Relationship toolbar. The buttons in the Relationship toolbar provide two operations for creating links; a simple create link operation to place a link between two existing objects and a create-and-link operation to create a new secondary object and link it to the primary in a single step.

To create a link between two existing objects:

1 Open the relationship form.

2 Find the primary and secondary objects using *ad hoc* query capabilities.

3 Select the objects to be linked together using the Rolodex on forms or selecting the row header for grids.

4 Click the **Create Link** button in the **Relationship** toolbar. Alternatively, you can choose **Relationship** > **Link** from the **Object** menu. RM Concept indicates the presence of the link with a "Linked" label in the space to the left of the secondary form below the Rolodex.

Creating a New Secondary Object and Linking Simultaneously

RM Concept provides a shortcut to allow you to create and link a secondary object in a single operation.

To create a new secondary object and link it to an existing primary object:

1 Open the relationship form.

2 Find the primary object using *ad hoc* query capabilities.

3 Enter required attribute values in the secondary class form.

4 Select the primary object by clicking on the background of its form.

5 Click the **Create and Link Objects** button in the relationship toolbar or choose **Relationship** > **Create and Link** from the **Object** menu. RM Concept creates the

new secondary object and indicates the presence of the link with a "Linked" label in the space to the left of the secondary form below the Rolodex.

Finding Linked Only Records in a Relationship

The **Linked** button is displayed on the left side of the form below the **Cancel** button when the secondary form of a relationship is in **Find** mode.

To find linked-only records in a relationship:

1. Open a relationship form opened in "find" mode:
2. Select the form for the primary object. The form is highlighted.
3. Filter one or more primary objects using an *ad hoc* query.
4. Select a primary object of interest.
5. Select **Linked** next to the secondary form to display objects from the secondary class that are linked to the primary object.

Creating Class Forms

To create a class form:

1. Select **New** > **Form** from the **File** menu. The **Choose a Template** dialog opens.

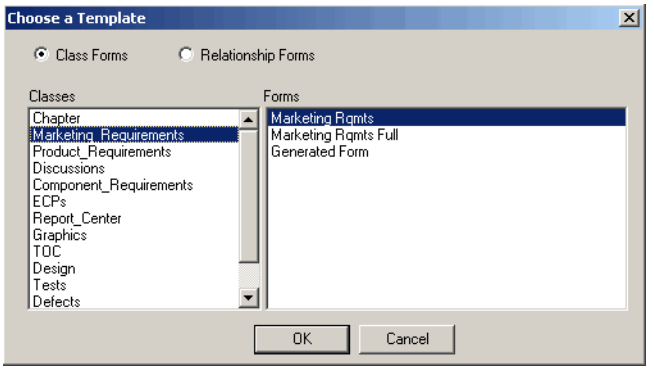

Figure 3-10. Choose a Template—Class Forms

2. Select **Class Forms** (it may already be selected).

   Two lists are displayed:

   - **Classes** allows you to select the class for which you will create the form.
   - **Forms** allows you to select a template from which to create the new form. The form list includes only forms previously created, based on the selected class and your "read privileges."

3. Select a class and a class form to use as a starting template.
4. Click **OK** to enter layout mode and edit the new form itself. Refer to "Editing Forms in Layout Mode" on page 79 for details on editing form layouts.

Copying Forms

You can also create class forms by copying existing forms. In contrast to creating a form using another as a template, the form copy operation allows you to create class forms based on those of other classes. There are two steps to form copy: first, selecting the source class and form as well as the destination class; second, mapping the attribute controls from the source class to the destination class attributes. To copy a form:

1 Select **Copy Form** from the **File** menu.

The **Copy Form Selection** dialog opens.

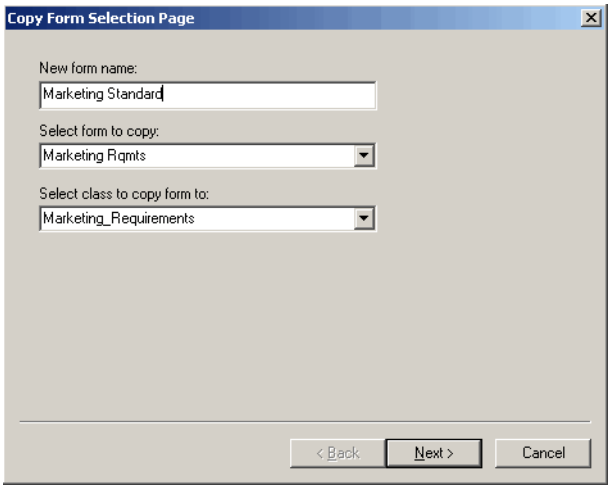

Figure 3-11. Copy Form Selection

2 Enter the name for the new form.

3 Select the source form (form to copy).

4 Select the destination class (class to copy form to).

5 Click **Next** to continue.

The **Map Attributes** dialog opens.

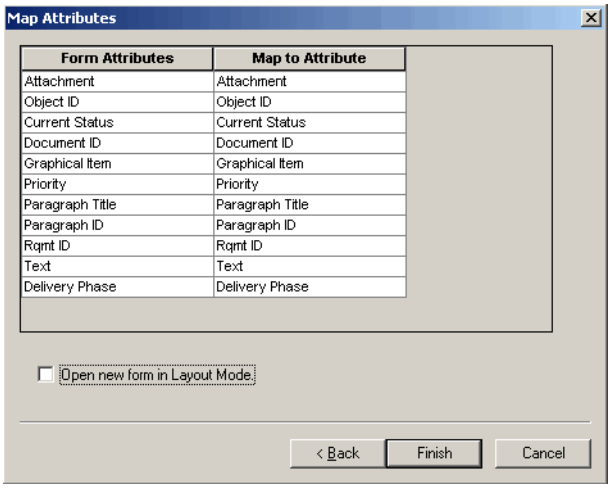

Figure 3-12. Map Attributes

6 For each attribute in the **Form Attributes** column, select a **Map to Attribute** entry. These mappings define which attributes of the destination class (the map to

attributes) are to be associated with the attribute controls (the form attributes) on the form copy.

7 Select the **Open new form in Layout mode** check box to edit the new form layout when you have finished the attribute mapping.

8 Click **Finish** to complete the copy operation.

Editing Forms in Layout Mode

Layout mode allows you to edit form layouts. In layout mode, you may change the appearance and fields on the form. When you enter layout mode, the attribute chooser is automatically displayed.

Accessing Layout Mode

To access Layout Mode:

1 Open a form.

2 Select **Layout** from the **View** menu.

Display the Attribute Chooser

When you open a form in layout mode, the attribute chooser is displayed as a floating window by default. To show or hide the chooser, select or clear the **Attribute Chooser** check box in the **View** menu.

Figure 3-13. Attribute Chooser

To change the chooser from a floating window to an integral part of the RM Concept form layout workspace, click the **X** in the upper right of the chooser's window title bar.

Adding Attributes to a Form

The attribute chooser contains a list of attributes that are not currently on the form.

To add an attribute from the attribute chooser to the form:

1 Select an attribute from the list of attributes in the chooser.

2 Click the form where the attribute field should be displayed.

A control based on the type of the attribute is displayed on the form, as well as a text label for the control. A mandatory icon is displayed next to the attribute name in the attribute chooser, indicating that the attribute is a mandatory. If users will be creating new objects with your form and will have the ability to specify values for the mandatory fields, you should be sure to put those mandatory fields on the form.

Moving and Sizing Controls

Any control on the form can be moved by the arrow keys or by clicking the control and dragging it to its new location. Controls also can be resized by dragging the edges or corners of the control. Selecting the item on the form and using the arrow keys or clicking on the control and dragging it to its new location can also move any control on the form. Clicking on the control and dragging one of the edges or corners of the control can also resize controls.

Removing Attributes from a Form

To remove an attribute control from the form:

1. Select the attribute control on the form being sure that its text label is also selected. Shift-click to select more than one item. RM Concept displays drawing handles at the corners of the selected items.
2. Use the Delete key to put the selected items back in the attribute chooser.

Modifying Control Properties

You can modify any of the visual properties of an attribute control or text on the form (for example, color, text or borders).

To modify control properties:

- Double-click or right-click the control.

  The **Property Sheet** dialog opens. The properties that are displayed differ, depending on the type of control.

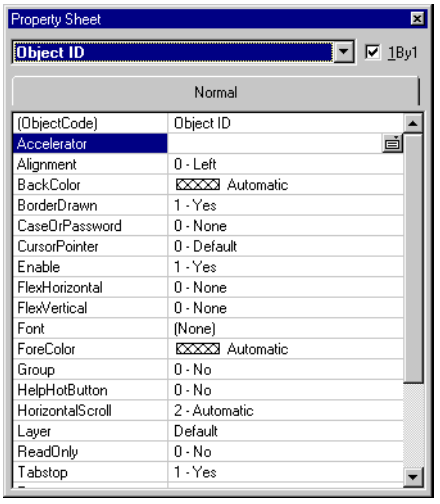

Figure 3-14. Property Sheet

NOTE If the control is an edit control, and the attribute is a single-line or text attribute, set the **HorizontalScroll** property to **None** for word wrapping.

Adding Non-Attribute Controls to a Form

You can add graphic elements such as lines, boxes, circles and bitmaps to a form using the drawing and layout toolbars, which appear when you enter form layout mode. The drawing toolbar (above the workspace) contains icons to allow you to add the graphic elements as well as the visual indicators for links, proposed changes, and comments. The layout toolbar (below the workspace) provides a number of standard drawing capabilities including rulers, snap points, grouping and alignment operations.

To add a non-attribute control to the form:

1. Click the drawing toolbar button representing the control you want to include in the form.
2. Click the location on the form where the control should be added.
3. Right-click or double-click the control to open and modify its property sheet as needed.

The layout toolbar also provides buttons to control property sheets and an object sheet that allows you to set the tab order for all control fields on the form.

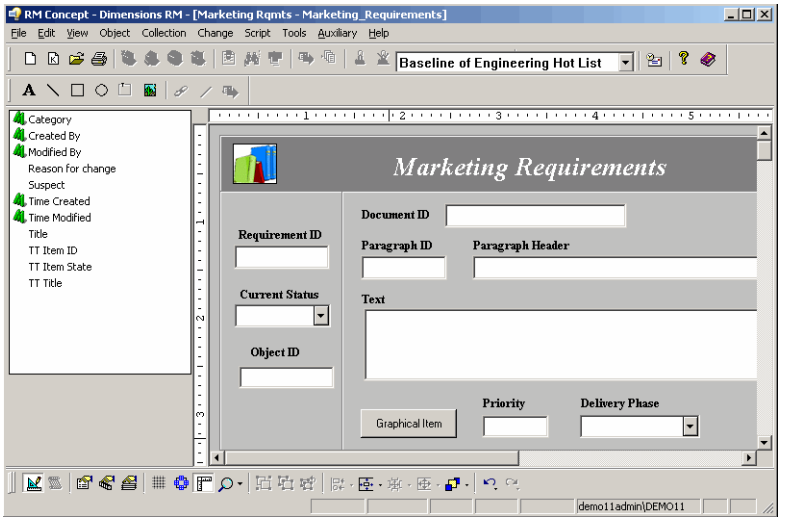

Figure 3-15. Form Editing in Layout Mode

Saving a Form and Setting its Access Controls

You can save a form by selecting **Save** from the **File** menu or by selecting **File** > **Save As** to save a form with a new name. (Alternatively, selecting **Form** from the **View** menu prompts you to save form layout changes). When you save a new form, you can choose to set its access controls at the same time by selecting the **Assign Access on Creation** check box in the **Save As** dialog. Refer to "Changing Form Security" on page 69 for details on assigning access controls to forms.

Creating Relationship Forms

To create a new relationship form:

1. Select **New** from the **File** menu.
2. Select **Relationship Forms**.

The **Choose a Template** dialog opens.

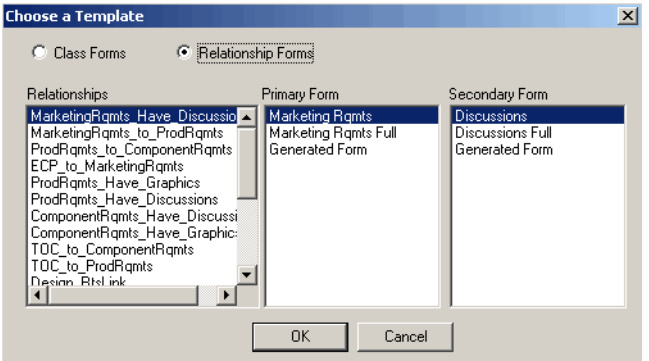

Figure 3-16. Choose a Template—Relationship Form

Three lists are displayed, which allow you to view relationship and form data based on your read privileges:

- A list of relationships for which you may create a form.
- A list of forms to display the primary class data (this list changes as you select different relationships).
- A list of forms to display the secondary class data (this list also changes as you select different relationships).

3 Select a relationship, a primary class form, and a secondary class form.

4 Click **OK**.

5 The **Save Form** dialog prompts you for a name for your new form. You may also set access controls for the new form by selecting the **Assign Access on Creation** check box. Refer to "Changing Form Security" on page 69 for details on assigning access controls to forms.

Working with Grids

Displaying data through a grid allows you to view multiple objects at the same time. Data can be edited, created, deleted, removed and printed. The columns displayed in the grid can be modified and printed. The grid also allows you to change the content of multiple objects. You can generate customized reports through the grid. This section describes the operations available on the grid view.

IMPORTANT! To perform operations on objects in grid mode (such as update, replace, and delete), you must first lock the objects. To do so, either select **Edit > Lock for Edit** or click the Lock button on the toolbar.

The cells in the grid display class attributes based on the data types of the attributes and whether you are editing or viewing data. If you are viewing data, all attribute values appear as text or small bitmaps (in the case of visual indicators for links, comments, and pending change requests) in the grid cells. If you are editing data, text and line attributes are displayed as edit boxes; list attributes are displayed as multi-select or single select lists.

Graphic attributes are not displayed in the grid view. Refer to "Displaying Graphic Attributes" on page 99 for details on viewing graphic attributes within RM Concept.

When you are working with a grid view, a right click inside the grid view invokes a context menu of grid operations. Several other operations are available by direct manipulation of the grid itself, including moving columns, sorting, and resizing columns.

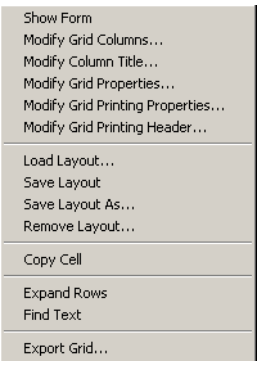

Figure 3-17. Grid View Context Menu

Switching to Form View

To switch to form view:

1 Select a row in the grid that you want displayed in a form view.

2 Right-click in the RM Concept window outside of the grid display area.

3 Select **Show Form** from the context menu to display the data selected in the form.

The grid is displayed with the data in a format determined by the current form or default grid layout. The grid columns consist of some subset of the fields that are being displayed on the form. The grid display time depends on the number of objects selected in the form. To reduce the display time, filter the number of objects selected in the form to 50 or less.

Modifying Columns Displayed in the Grid

To modify the columns currently displayed in the grid:

1 Right-click the grid.

2 Select **Modify Grid Columns** from the context menu. The **Grid Layout** dialog opens. The left side of the dialog shows display names of the attributes that are not currently displayed in the grid. (Display names are specified in the class definition.) The right

side of the dialog shows display names of the attributes that are currently being displayed in the grid.

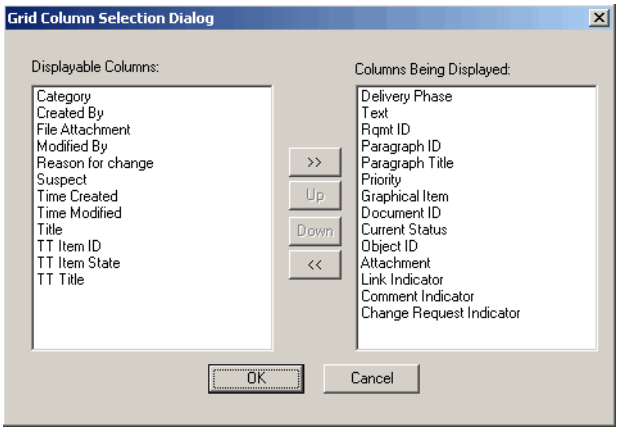

Figure 3-18. Grid Layout

To add attributes to be displayed in the grid:

1 Select the attributes to be displayed.

2 Click **>>**.

To remove attributes to be being displayed in the grid:

1 Select the attributes to be removed.

2 Click **<<**.

The columns attributes selected will be displayed as columns from left to right in the grid in the top-to-bottom order presented in this dialog.

To change the order in which columns will be presented:

1 Select the name of the attribute that you want to move. Be sure that no other attribute names are selected.

2 Click the **Up** or **Down** button as needed to move the attribute name to the desired location in the list.

Modifying Column Headings in the Grid

To modify the heading text of a grid column:

1 Select the column to be modified by left clicking in its column header. RM Concept highlights the entire column.

2 Right-click the grid.

3 Select **Modify Column Title**.

The **Modify Column Title** dialog opens.

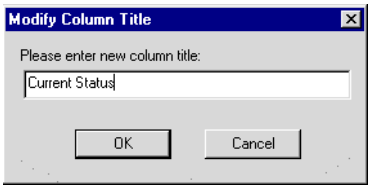

Figure 3-19. Modify Column Title

4 Type the new column heading.

5 Click **OK**.

Modifying Grid Display Properties

Grid display properties control the appearance of the grid on the screen.

To modify grid display properties:

1 Right-click the grid.

2 Select **Modify Grid Properties**.

The **Display Settings** dialog opens.

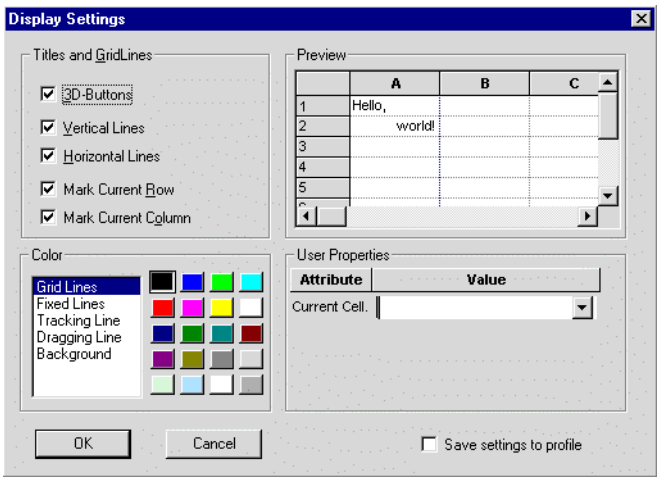

Figure 3-20. Display Settings

3 Specify display properties.

4 Select the **Save settings to profile** check box to reuse these grid properties on other grid displays.

Modifying GridPrint Properties

Grid print properties control the appearance of the grid when it is printed.

To modify grid print properties:

1 Right-click the grid.

2 Select **Modify Grid Printing Properties**.

The **Page Setup** dialog opens.

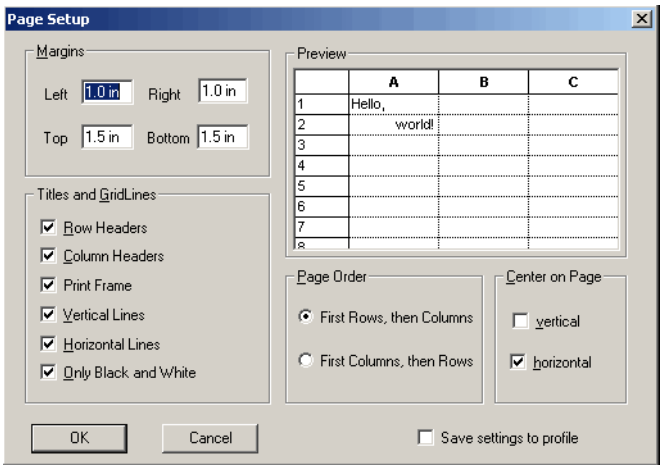

Figure 3-21. Page Setup

3 Specify the printing properties.

4 Select the **Save settings to profile** check box to reuse your grid page setup with other grid layouts.

5 Click **OK**.

Adding a Print Header to the Grid

The print header is used on printed copies of the grid content.

To add a print header to the grid:

1 Right-click the grid.

2 Select **Modify Grid Printing Header**.

The **Print Header** dialog opens.

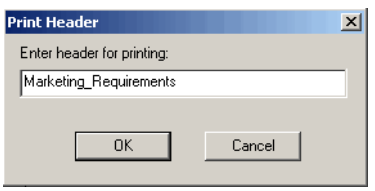

Figure 3-22. Print Header

3 Enter the header text and click **OK**. (The default value for the header is the class name.)

Using Grid Layouts

Grid layouts control the column selection, order, width, and headings for a grid view. You can create and save grid layouts to be re-used by others or yourself. Grid layouts are especially useful when you use a grid view to perform frequently repeated operations such as reviewing or updating some set of class-specific attributes. You can create a grid layout by directly manipulating the grid display to create the desired appearance.

Saving Grid Layouts

You can create new grid layouts from existing ones with the Save As operation. If the grid is displaying a layout that was loaded using the **Load Layout** menu item or if the current layout is the default layout, selecting **Save Layout** will save the your changes to the loaded layout.

To save the current grid configuration to a new named layout:

1. Right-click on the grid.
2. Select **Save Layout As**.

   The **Save Grid Layout** dialog opens.

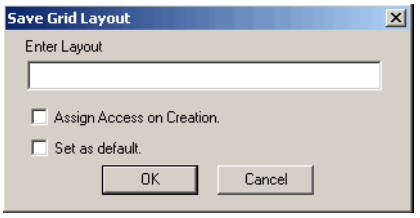

Figure 3-23. Save Grid Layout

3. Enter the layout name
4. Click **OK**. The column information (width, display name, and attribute) as well as the print header are saved.
5. To assign access rights for the newly created grid layout, select the **Assign Access on Creation** check box when you create a new layout.
6. To set the newly created grid layout as the default for the current class, select the **Set as default** check box.

Assigning Access to Grid Layouts

Only the user who created a grid layout (its owner) can modify its access rights.

To assign the access rights for the current grid layout:

- In the **Security** dialog, select a user to assign access rights.

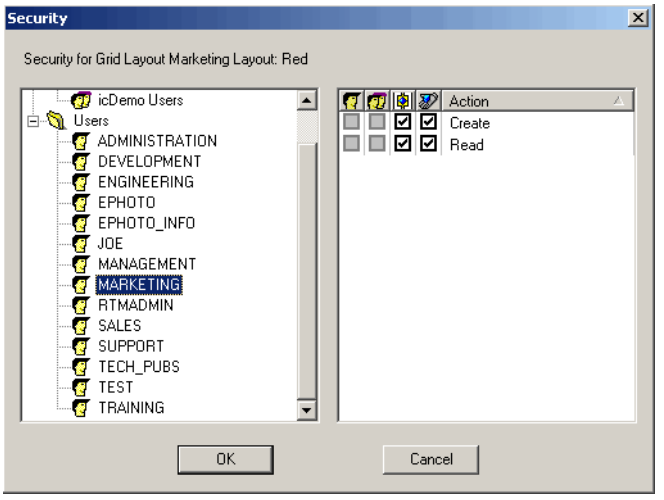

Figure 3-24. Security

This dialog allows you to set the access rights for the grid layout for users and for groups within the project. The security menu item will only be displayed if you are the owner of the grid layout. You can set the **Read** access right. The create access right is ignored when using existing grid layouts.

Loading a Grid Layout

To load a grid layout:

1. Right-click the grid.
2. Select **Load Layout** to display saved grid layouts for the current class.
3. Select the layout.
4. Click **OK** to reformat the grid.

Copying and Pasting Grid Cells

To copy data from a cell to one or more other cells:

1. Select the rows containing the source cell and destination cells.
2. Select **Lock for Edit** from the Edit **menu**. The row headers of locked rows are shown in blue.
3. Select the source cell within a locked row.
4. Right-click and select **Copy Cell**.
5. Select one or more destination cells. Use Shift-select and Ctrl-select for selecting multiple rows as needed.
6. Right click and select **Paste Cell**.
7. Update or replace each row as needed.
8. Select locked rows.
9. Select **Release Lock** from the **Edit** menu.

Expanding and Collapsing Rows in Grid

When the grid is initially displayed, each row has a height of one line, whether or not all the text for the cell can be displayed.

To expand and collapse rows in a grid:

1. To expand the rows in the grid, right-click the grid and select **Expand Rows**.
2. Right-click the grid when the rows have been expanded to display the text.
3. Select **Collapse Rows** to set each row to height of one line.

Completing Text Loads (Load Data not Fully Loaded)

To optimize grid display time for both simple and Complex find operations, longer text attributes are truncated at 2 KB. An ellipsis "…" is substituted for any text after the 2 KB boundary. You can retrieve the full text for situations such as exporting the grid contents to reports.

To retrieve the full text and complete the truncated cells:

1. Right-click the grid.
2. Select **Load Data not Fully Loaded.**

Finding Text in the Grid

To search for occurrences of specific strings in a column:

1. Select the rows that you want to search.
2. Select **Lock for Edit** from the **Edit** menu.
3. Select the column that you want to search.
4. Right-click in the selected column and choose **Find Text**.
5. Type the search string into the **Find What** box in the **Find** dialog.
6. Specify case sensitivity, search direction and whole/partial word match as desired.
7. Click the **Find Next** button as needed to step through the cells containing the search string.
8. Click **Cancel** to exit the **Find** dialog.

Exporting Grid Content

When you have retrieved objects and displayed them in the grid to your liking, you can export the grid content to an external file in CSV or text format.

To export grid content:

1. Right-click the grid and select **Export Grid**.

   The **Save As** dialog opens.
2. Navigate to the desired directory.
3. Enter a file name.
4. Select a file type.
5. Click **Save**.

Moving Columns by Direct Manipulation

There are two ways to reorder the grid columns. One way is described in "Modifying Columns Displayed in the Grid" on page 83. The other way is by direct manipulation of the grid.

To move a column by direct manipulation:

1. Select the column header. The column becomes highlighted.
2. Drag the column by holding down the left mouse button. As you move the cursor across the other columns, a vertical red line is placed at the left side of each column. This red line marks the column that will appear to the right of the moved column.
3. Release the button when the cursor is in the column before which you want to insert the moved column.

Sorting the Grid

To sort the rows in the grid by a single attribute value (column):

- Double-click in the column header.

  The first double-click sorts the rows in ascending order of that column. The second double-click sorts the rows in descending order.

Resizing Columns

To resize a column:

1. Place the cursor on the vertical line marking the right-most edge of the column header. The cursor changes from an arrow to a vertical bar with small arrows pointing left and right.
2. Drag the right edge of the column header to the right to make the column wider. Drag to the left to make the column narrower.
3. Release the mouse button when you are satisfied with the column width.

To resize more than one column at one time and set all of their column widths to the same value, select the columns to resize and follow the preceding steps. Use Ctrl-select to select non-adjacent columns.

Resizing Rows

To resize a row:

1. Place the cursor on the horizontal line marking the bottom edge of the row header. The cursor changes from an arrow to a horizontal bar with small arrows pointing up and down.
2. Drag the bottom edge up or down to make the row shorter or taller as needed.
3. Release the mouse button when you are satisfied with the row height

To resize more than one row at one time and set all of their row heights to the same value, select the rows to resize and follow the preceding steps. Use Ctrl-select to select non-adjacent rows.

Shrink-to-Fit

RM Concept can shrink (or grow) rows and columns to fit their content. To shrink-to-fit a column, double click on the vertical line marking the right edge of the column header.

To shrink-to-fit a row:

- Double click on the horizontal line marking the bottom edge of the row header.

Working with Objects

RM Concept provides quick, efficient management of your project objects. The following table describe the basic operations you to work with objects.

Operation	Description
Create	Produce and store a new object in the project.
Edit	Modify object attributes and store changes with **Update** or **Replace**.
Delete	Mark object as deleted.
Undelete	Undo the delete operation.
Remove	Expunge object from project.
Create or Break Links	Link or unlink objects manually or automatically.
Focus	Collapse two or more objects into a single new object.
Expand	Decompose an object into two or more new objects.
View Graphic Attributes	Display graphic attribute values, which cannot be displayed on forms or in grids.
View Class Access Rights	Display your access rights to a specific class.
View Object Associations	Display lists of objects related by various kinds of relationships to a selected object of interest.
Evaluate Attributes	Generate computed attribute values.
Comments	Add and review comments against objects.
Open Source	Launches a desktop publishing tool to view a captured object in context.

NOTE You cannot update a baselined object.

Creating a New Object

You can manually create new objects from within either Form or Grid view. The steps are slightly different in the two views.

To create a new object in form view:

1. Be sure that you are viewing an object in the form.
2. Edit each field in the form as desired or select **Clear** from the **Edit** menu to remove any unwanted data being displayed and then enter the new data into the form.
3. Select **New** from the **Object** menu or click the **New Object** button .

To create a new object in grid view:

1. Select a row.
2. Select **New** from the **Object** menu or click the **New Object** button . This creates a new object that is a copy of the one you selected in step 1.
3. Select the new object at the bottom of the grid.
4. Select **Lock for Edit** from the **Edit** menu or click the **Lock** button .
5. Modify each cell in the locked row as needed. Use the **Clear** button to empty the entire row if desired.
6. Select **Update** from the **Object** menu (or **Replace** if **Update** is unavailable) or click the **Update** or **Replace** button. This stores your changes in the project database. The update operation stores your changes in the current version of the object. The replace operation creates a new version of the object. Use replace to preserve project history.
7. Select **Release Lock** from the **Edit** menu.

Alternatively, you can use the following shorter method to creating new objects in grid view.

1. Select a row.
2. Select **Lock for Edit** from the **Edit** menu or click the **Lock** button .
3. Modify each cell in the locked row as needed
4. Select **New** from the **Object** menu or click the **New Object** button . This creates a new object with the attribute values as they appear in the locked row. The locked is reloaded with its original attribute values and the new object is displayed in a new row at the end of the grid.
5. Select **Release Lock** from the **Edit** menu.

You can also create new objects using the CSV import wizard. Refer to "CSV Import" on page 119 for details.

Editing an Object

When you change an object in Dimensions RM, there are two mechanisms for storing the modifications. An update operation stores your changes in the current version of the object and overwrites pre-existing content. A replace operation creates a copy of the object and stores your changes in the copy. The original object's current status attribute value is set to "replaced" and the copy's current status attribute value is set to current. In many installations, the ability to perform update operations is limited to project

administrators so that information about project evolution is gathered and maintained automatically.

To edit an object in form view:

1. Be sure that you are viewing the object that you want to modify in the form.
2. Click the left mouse button in any form field to select it.
3. Use the keyboard and/or mouse to change attribute values as needed. You can use the standard Ctrl-x, Ctrl-c, and Ctrl-v to cut, copy, and paste text in form fields.
4. Select **Update** from the **Object** menu (or **Replace** if **Update** is unavailable) or click the **Update** or **Replace** toolbar icon. This stores your changes in the project database. The update operation stores your changes in the current version of the object. The replace operation creates a new version of the object. Use replace to preserve project history. Use **Reload** from the **Edit** menu if you have edited object attributes, but do not want to save the edits, or if you want to revert to the original object attributes. This operation resets the data in the form or grid row to the data contained in the database.

To edit an object in grid view:

1. Select the row containing the object data that you want to modify.
2. Select **Lock for Edit** from the **Edit** menu or click the **Lock** button .
3. Modify each cell in the locked row as needed. For grid cells, copy and paste work as described in "Copying and Pasting Grid Cells" on page 88.
4. Select **Update** from the **Object** menu (or **Replace** if **Update** is unavailable) or click the **Update** or **Replace** button. This stores your changes in the project database. The update operation stores your changes in the current version of the object. The replace operation creates a new version of the object. Use replace to preserve project history. Use **Reload** from the **Edit** menu if you have edited object attributes, but do not want to save the edits, or if you want to revert to the original object attributes. This operation resets the data in the form or grid row to the data contained in the database.

CAUTION! If you lock multiple rows in the grid and make changes to them, the update operation will commit changes to all locked rows. The replace operation, however, only commits changes to the selected row.

5. Select **Release Lock** from the **Edit** menu.

You can also modify objects using the batch update wizard and the CSV import wizard.

Evaluating System Commands in Attribute Values

You can enter system-interpreted calls into fields on a form or into cells in a grid and have those values interpreted by the operation system. For example, you can type <&date> into a cell to insert the command to retrieve the current date into the field. The <, &, and > characters are removed from the cell or field and the date is inserted into the field. When the expression is evaluated, the value returned by the system command is inserted into the field.

Evaluated Commands as Default Attribute Values

You also can set up a default value in the class definition so that when the object is created, Dimensions RM evaluates the command behind the scenes and inserts the result into the form or grid. To have a command evaluated each time an object is loaded into the form, use <&command>. To have the command evaluated when the attribute is stored in the database, use <$command>.

Evaluating Commands in Real Time

To automatically evaluate an expression and store the result into the form as you are editing:

1. Enter the expression into the attribute field or cell using either <&command> or <$command>.
2. Select **Evaluate** from the **Edit** menu. RM Concept stores the result of the command into the selected attribute control.

Evaluated commands only work with system commands (built-in to the Unix shell or built-in DOS commands). Note that DOS and Unix system commands behave differently. Other system calls, such as "time," "dir" and "find" can be used as well.

Deleting an Object

The delete operation sets the object's current status attribute to "Deleted." This operation will only set the status of the attribute to be deleted; it will not remove the object from the project.

1. In form view, scroll through the Rolodex in the upper left of the window until the object is displayed in the form and select **Delete** from the **Object** menu or click the **Delete** button .
2. In grid view, select a cell within the row (or select the rows to be deleted) and select **Delete** from the **Object** menu. Before selecting the menu item or pressing the toolbar button, make sure that the cursor is in a cell of the row to be deleted.

You can also delete objects using the Batch Update and CSV Import Wizards. See "CSV Import" on page 119 and "Batch Update Wizard" on page 123 for details.

Undeleting an Object

The Undelete operation is only available on objects where the status value is "Deleted." Performing this operation will set the status for the undeleted object to "Current." Recall that you must clear the **Current Object Only** check box in the **View** menu in order to see non-current objects in *ad hoc* query results.

1. If the object is being displayed through a form, scroll the Rolodex until the object to be undeleted is displayed in the form and select **Undelete** from the **Object** menu.
2. If the object is being displayed in a grid, select a cell within the row or select the row (or rows) to be deleted and select **Undelete** from the **Object** menu. Before selecting the menu item, make sure that the cursor is in a cell of the row to be undeleted.

You can also undelete objects using the Batch Update and CSV Import wizards. See "CSV Import" on page 119 and "Batch Update Wizard" on page 123 for details.

Removing an Object from the Database

When an object is removed, if the object has a parent object, the parent object's status is changed to "Current." The Remove operation can only be applied to current objects. Once this operation has been performed on an object, there is no way to retrieve the object.

1. In form view, scroll the Rolodex until the object to be removed is displayed in the form and select **Remove** from the **Object** menu.
2. If grid view, select a cell within the row or select the row to be deleted and select **Remove** from the **Object** menu. Before selecting the menu item, make sure that the cursor is in a cell of the row to be removed.

You can also remove objects using the Batch Update and CSV Import wizards. See "CSV Import" on page 119 and "Batch Update Wizard" on page 123 for details.

Linking Objects

You can create and break links between objects with RM Concept using relationship forms and their corresponding grid views. Refer to "Using Relationship Forms to Find and Link Objects" on page 76 for details on opening relationship forms and finding objects with relationship forms. The Autolink wizard provides an automated alternative to manual link creation. Refer to "Auto Link Wizard" on page 126 for details.

Creating Links Between Objects

When RM Concept displays a relationship form, it also displays the relationship toolbar. The icons in the relationship toolbar provide two operations for creating links; a simple create link operation to place a link between two existing objects and a create-and-link operation to create a new secondary object and link it to the primary in a single step.

Creating a Link between Two Existing Objects

To create a link between two existing objects:

1. Open the relationship form.
2. Find the primary and secondary objects using *ad hoc* query capabilities. You can change primary, secondary, or both forms to grid view. To link one primary object to multiple secondary objects, put the part of the form containing secondary objects into grid view and select each row (using Shift-select or Ctrl-select) to be linked.
3. Click the **Create Link** button on the relationship toolbar. A "Linked" label in the space to the left of the secondary form below the Rolodex indicates the presence of the link.

Creating a New Secondary Object and Linking Simultaneously

RM Concept provides a shortcut to allow you to create and link a Secondary object in a single operation.

To create a new secondary object and link it to an existing primary object:

1. Open the relationship form.
2. Find the primary object using *ad hoc* query capabilities.

3 Enter required attribute values in the secondary class form.

4 Select the primary object by clicking on the background of its form.

5 Click the **Create and Link Objects** button on the relationship toolbar. A "Linked" label in the space to the left of the secondary form below the Rolodex indicates the presence of the link.

Breaking or Deleting Links

To delete links in a relationship form:

1 Select the object in the top/left portion of the workspace from which you want to delete links.

2 Find its linked objects using the **Linked** button in find mode.

3 Select any linked objects from the bottom/right portion of the workspace for which you want to remove the links. If you put the bottom/right portion of the workspace in grid view, you can select more than one link to break at a time using Shift-click and Ctrl-click.

4 Click the **Break Link** button or choose **Relationship > Break Link** from the **Object** menu.

Focusing Objects

Focus mode allows you to create a single new object by combining multiple objects and to retain a linkage between the original objects and their new descendant. Following the focus operation, each object that you have included has a current status of "Focused," the newly created object has a status of "Current." The newly created object can be traced through its ancestry to each of the original objects.

Select **Focus** from the **View** menu. RM Concept displays the active form in the top or left pane of the window and the form in the bottom or right pane of the window. The top or

left pane displays the same data that were previously selected and the bottom or right pane displays zero for the object count.

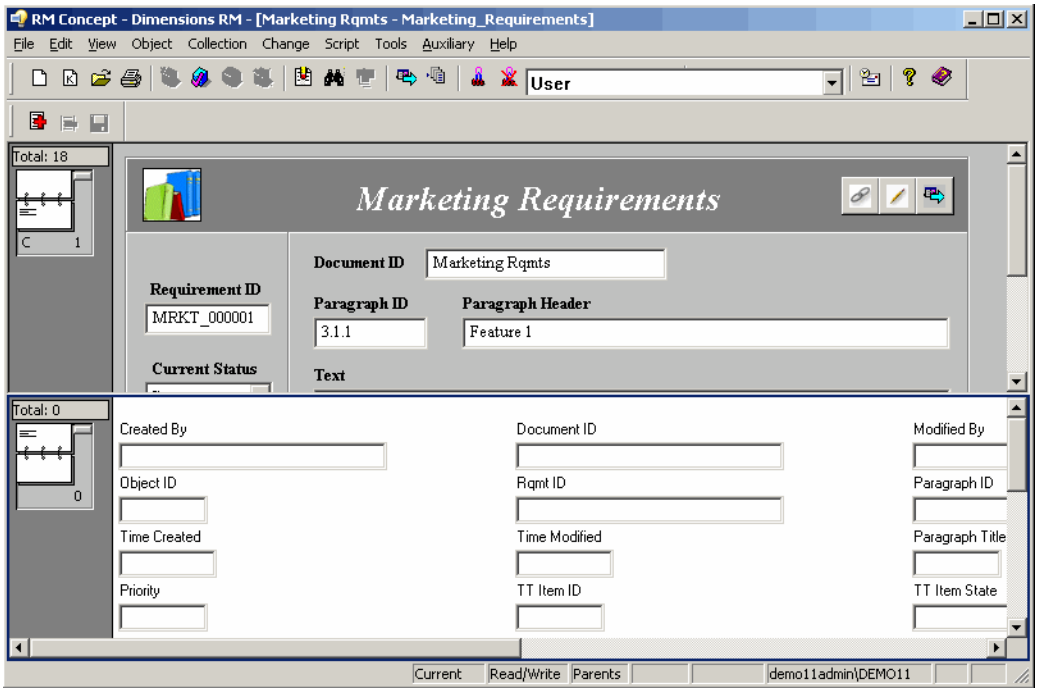

Figure 3-25. Focus View

As you add objects from the top pane to the focus list, the bottom pane shows a copy of the attributes from the most recently added object. This bottom pane is a template for the new object as opposed to a list of objects. Clicking the Rolodex in the bottom pane adjusts the top pane to display the corresponding object in the focus list. When you commit the focus list each object in the list has its current status changed to "focused" and a new object is created based on the attribute values visible in the bottom pane.

Adding to Focus List

To add objects to the focus list:

1. Scroll the top or left pane to an object that is to be focused into the new object.
2. Select **Focus** and **Add to List** from the **Object** menu, or click the **Add to List** button . If this is the first object added to the focus list, the values for the currently selected object are loaded into the bottom or right form. The Rolodex count in the bottom or right window is incremented by 1.
3. Repeat this procedure as needed to put additional objects on the focus list.

Removing Objects from Focus List

To remove objects from the focus list:

- Select **Focus** > **Remove From List** from the **Object** menu or click the **Remove from List** button .

Committing a Focus

When objects have been added to the focus list and the data displayed in the bottom/right form are correct, you can commit the focus.

To commit a focus:

- Select **Focus** and **Commit** from the **Object** menu, or click the **Commit** button .

Any records that are in the focus list will have their status attributes changed to "Focused" and a new object is created using the data in the form with a status of "Current." The objects being focused become parent objects of the newly created object. The new object content is determined from the bottom/right pane at the time of the commit.

Expanding an Object

Expanding allows you to break down a complex object into a set of simpler objects, and to retain the linkage between the original object and the new objects.

To expand an object:

1. Select the object in form or grid view.
2. Select **Expand** from the **View** menu. This switches the view to expand mode, with the found set of objects in the top/left pane, and a copy of the currently selected object in the bottom or right pane of the window.

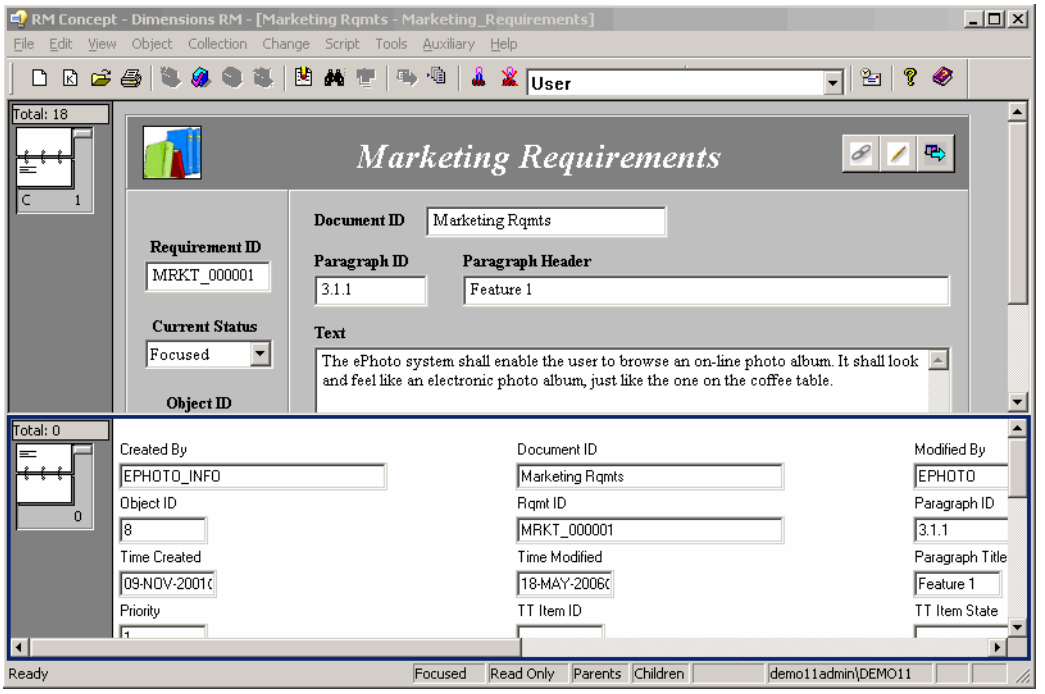

Figure 3-26. Expand View

3. Enter the new data into the form in the bottom or right pane of the window, or open an existing form.
4. Select **Expand** from the **Object** menu (not the **View** menu). This updates the project with the new object that you created in step 3.

5 Repeat steps 3 and 4 as needed to create additional objects as expansions of the original.

The bottom or right-pane Rolodex indicates the number of objects into which the object in the top or left pane has been expanded. The Rolodex in the bottom or right pane can be used to review objects that have been created through the expand function or used as a template for objects that are going to be expanded. The object being expanded is the parent object for each of the new objects created by the expansion.

NOTE You cannot edit HTML-enabled text attributes in RM Concept. Therefore, if you change such an attribute, you receive a prompt that asks whether you want to continue the operation and lose HTML formatting, continue the operation and retain the original value of the attribute, or cancel the operation. For more information about HTML-enabled text attributes, see the *Serena Dimensions RM Administrator's Guide*.

Displaying Graphic Attributes

Graphic or OLE attributes cannot be displayed in forms or grids. The **Display Graphic Attribute** operation on the **Tools** menu provides a way to view the content of the attribute in a separate window. A graphic object button can be added to the form in layout mode. If this has been done, and if there is a graphical attribute present, the button will be enabled. Clicking this button also invokes a view on the attribute.

Viewing Class Access Rights

To view access rights for the current class or form:

- Select **View Access Rights** from the **Tools** menu.

  The **Access Rights** dialog opens.

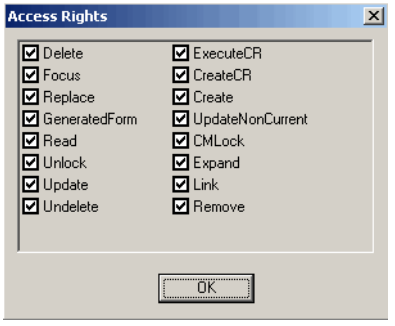

Figure 3-27. Access Rights

Access rights that are valid for your user ID are checked in the dialog. Disallowed access rights are not checked.

Object Association

Objects within Dimensions RM have an ancestry. Dimensions RM displays an object's ancestry through associations. A new object is created when an object is replaced, focused or expanded. The **Association** submenu of the **Object** menu allows you to display parent and child objects for the selected object.

Immediate Children

An immediate child of an original object is the object that was created when the original object was replaced, focused or expanded. Immediate children are the next version of objects in the line of descent and may be current objects or objects with another status.

To display the immediate children of an object:

1. Select an object or scroll to an object using the Rolodex in the upper left of the window.
2. Select **Association** > **Immediate Children** from the **Object** menu.

   This displays a dialog with a list of the object IDs that are immediate children of the selected object.

Lowest-Level Children

Lowest-level children of an object are current objects that are descended from the selected object. The objects contained in the lowest-level children list may skip generations of an object; that is they need not be immediate children of the selected object.

To display the lowest level children of an object:

1. Select an object or scroll to an object using the Rolodex in the upper left of the window.
2. Select **Association** > **Lowest Level Children** from the **Object** menu.

Immediate Parents

A parent object is the object that was used to create the currently selected object. Parent objects never have a status of "current." Only one object ID is displayed unless the object was created using the focus capability of RM Concept.

To display the immediate parents of an object:

1. Select the object or scroll to it using the Rolodex in the upper left of the window.
2. Select **Association** > **Immediate Parents** from the **Object** menu.

This displays a dialog with the list of objects that are the immediate parents of the currently selected object.

Source Parents

A source parent is the original object that was *either* captured from a document or input into the system. Source parent objects never have a current status. Only one object ID is displayed unless the object was created using the focus capability of RM Concept.

To display the source parents of an object:

1. Select the object for which you want to display the source parents or scroll to the object using the Rolodex in the upper left of the window.
2. Select **Association** > **Source Parents** from the **Object** menu.

This displays a dialog with the list of objects that are the source parents of the selected object.

Associated Collections

To display the list of collections to which the currently selected object is linked:

- Select **Association** > **Associated Collections** from the **Object** menu.

Adding and Reviewing Comments

In many projects, permission to modify objects may reside with only a few project members, while many more project members have visibility to the objects and a stake in their content. The comment facility provides a mechanism that allows users to attach comments to objects without altering the objects themselves. Comments are retained in the project in association with the versions of objects to which they were originally attached. This retained history of object evolution coupled with relevant comments allows future access to the rationale for that evolution.

Use of the comment feature requires that a comment class be defined and related to the class for which comments will be gathered. One comment class can be associated with any number of other classes.

NOTE The Comment class does not support user-defined attributes. That is, if there is a user-defined mandatory attribute for the Comment class, you can still add a comment to the object, even if the mandatory attribute is not present.

To add a comment to an object:

1. Select the object in grid or form view.
2. Select **Comment** from the **Object** menu.

   The **View/Edit Comments** dialog opens.

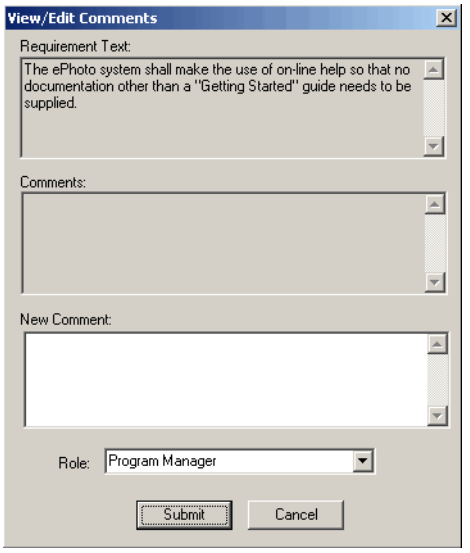

Figure 3-28. View/Edit Comments

NOTE If no comment class is associated with the class that you are currently working with the **Comment** menu item is disabled.

3. Enter your comment.
4. Select a role from the **Role** list if you want to indicate your perspective in originating the comment.

5 Click **Submit** to save your new comment.

Sending an E-mail Message About an Object

You can send an e-mail message about an object to selected users by using the **Send to** command. This command is available for objects that are found within a class or relationship. The **Send to** command sends the PUID and text of the object, a comment you enter, and an optional attachment to any or all of the following:

- Selected project users
- An e-mail address
- All users who are registered with the e-mail registration service. For more information about the e-mail registration service, see "E-Mail Notification" on page 128.

NOTES

- To use the Send To feature, the RM Mail applet must be configured. For more information, see the *Serena Dimensions RM Administrator's Guide.*
- Users must have their e-mail addresses entered in the user information section of RM Manage.

To send an e-mail message about an object:

1 Do one of the following:
   - Open a class form and find an object within the class.
   - Open a relationship form and find an object within the primary or secondary class.

2 Select **File** > **Send To**.

   The **Send To** dialog opens. The **PUID** and **Text** fields contain the PUID and text of the object, respectively.

3 In the **Comment** field, type a comment that you want to include in the e-mail message.

4 Specify the users to whom you want to send the e-mail message. You can do any or all of the following:
   - Select one or more users in the **Sent To** list. Use CTRL+click to select multiple users.
   - Click the **Other** button and type a valid e-mail address.
   - Select the **Send to registered users** check box. This sends the e-mail message to any user who is registered with the e-mail registration service.

5 If you want to attach a file to the message, click the **Attachment** button and then do the following:
   - **a** Browse to the file that you want to attach.
   - **b** Click **Open**.

6 Click **Send** to send the e-mail message.

   The PUID, text, comment, and attachment (if any) is sent in the e-mail message.

Working with Collections

Collections are named groups of objects from one or more classes. You can add objects to a collection one at a time by manually linking each object to a collection. You can also link a whole group of objects to a collection using several different autolink operations. Collections provide a simple way to gather and organize object without requiring special privileges on those objects. Any user can create, control access to collections, and link or unlink objects to or from collections. You can use them to create fluid subsets of project data, to help you manage your workload or to simplify reporting.

NOTE You cannot change collections that are baselined. For information about baselining collections, see "Baselining a Collection" on page 140.

Creating Collections

There are two types of collections: parent and child. Parent collections are used to associate multiple child collections. Objects can only be linked to child collections. Use parent collections to create hierarchies of collections to make searches easier. Objects linked to child collections of a parent are displayed when the parent collection is opened in RM Concept.

To create a new collection:

1. Select **New** > **Collection** from the **File** menu or click the **New Collection** button .
2. The **New Collection** dialog opens.

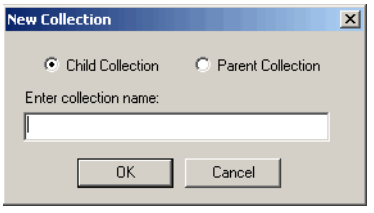

Figure 3-29. New Collection

3. Select **Child Collection** or **Parent Collection**.
4. Enter a name for the new collection
5. Click **OK** to create the collection.
6. For parent collections, the **Select Collection** dialog opens.

Figure 3-30. Select Collections

7 Select the collections to be associated with your parent collection. You must connect at least one child to the parent collection. As you select each collection, your choice is highlighted.

NOTE You can add other children to the parent collection later as described in "Viewing and Editing Parent/Child Links for Collections" on page 104.

8 Click **OK** to create the parent collection and link it to its child collections.

Opening a Collection

Opening a collection causes RM Concept to display objects that are linked to the selected collection. Each object is displayed through its class default form or the generated form.

To open a collection:

1 Select **Open** from the **File** menu.

The **Open** dialog opens.

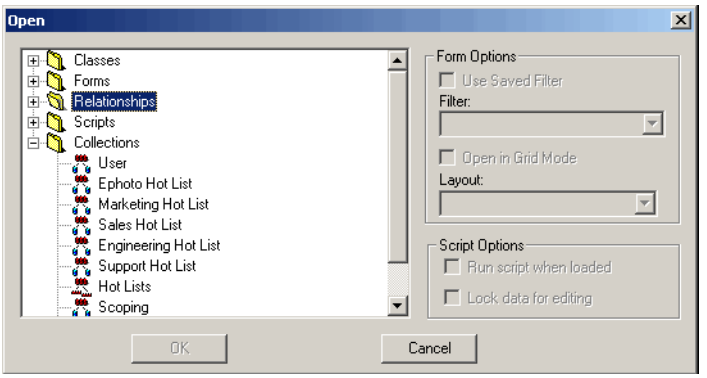

Figure 3-31. Open

2 Expand **Collections**.

3 Select the collection to be opened, and then click **OK**.

Viewing and Editing Parent/Child Links for Collections

Parent/child collection hierarchies give you a flexible mechanism to organize objects.

To view the child links for parent collections:

1 Select **View/Edit Parent-Child Links** from the **Collection** menu.

The **Parent/Child Collections** dialog opens.

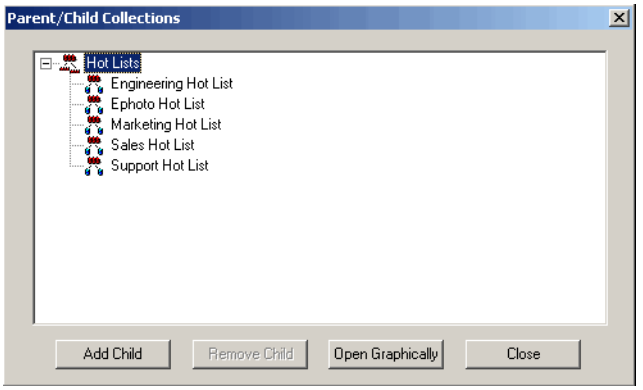

Figure 3-32. Parent/Child Collections

2 Click the **+** next to the parent collection to display the child collections for the selected parent collection. The child collections for a selected parent can be a mix of other parent and child collections.

3 To add a new child to the selected parent, click **Add Child**, select the desired collections to be added from the displayed list, and click **OK** in the list dialog. The collections will be added as children to the selected parent and will be added to the tree anywhere the selected parent may appear in the tree.

4 To remove a child collection from a parent collection, select a child and click **Remove Child**. This will remove the parent-child linkage.

NOTE If there is a recursive parent-to-parent collection relationship in the tree, the children for the parent collection will be displayed the first time it appears for a given branch, but will not be displayed again when the parent collection is displayed deeper in the tree.

Linking an Object to a Collection

To link an object to a collection:

1 Select the desired collection from the dropdown list in the toolbar, scroll the Rolodex to the object or select the row in the grid displaying the object's data.

2 Select **Link** > **To Current Object** from the **Collection** menu, or click the **Add to Collection** button .

The selected object is linked to the collection selected in the collection drop-down list in the main toolbar. If the display is in grid mode, you can select multiple rows to link to the collection. Objects can only be linked to child collections; therefore, if a parent collection is selected, the collection linking menu items and toolbar buttons will be disabled.

Unlinking an Object From a Collection

To unlink an object from a collection:

1 Scroll the Rolodex to the object or select the row in the grid displaying the object's data.

2 Select **Collection > Link** > **Unlink** from the **Current Object** menu, or click the **Remove from Collection** button on the **Current Object** toolbar.

The selected object will be unlinked from the collection selected in the collections drop-down list in the main toolbar. If the display is in grid mode, you can select multiple rows to unlink from the collection.

Linking Multiple Objects to a Collection

To link multiple objects to a collection:

1 Use a form in find mode to locate the objects that you want to link and then switch to grid view.

2 Select each object to be linked by clicking its row header. Use Shift-click or Ctrl-click for multiple selections. To select the entire grid-full of objects, click in the upper left corner of the grid, where the column header '#' appears, just above the first row header.

3 Select **Link** > **Selected Objects** from the **Collection** menu. This links the selected collection to all objects selected in the Rolodex or displayed in the grid.

Autolinking to a Collection

Collection autolinking lets you link multiple objects across multiple classes to a collection based on search criteria that you specify in terms of attribute values. Autolink matches are case sensitive.

There are four types of autolinking: collection text, pseudonym text, alias text, or all aliases. Each of these methods represents a pattern matching approach to finding the objects to be linked.

- A **collection name autolink** treats the collection name as a pattern for matching selected object attributes.
- A **pseudonym text autolink** lets you use a pattern specified at autolink time that is different from the collection name.
- An **alias autolink** allows you to use a pattern like a pseudonym, with some important differences: Aliases are created before the autolink step, are stored in your project, and will be retained until deleted, while pseudonyms are not retained.
- An **all aliases autolink** uses a set of aliases associated with a collection.

In addition to patterns to match attribute values, you must select the link scope, the classes to be included, and the attributes to search. You may search only attributes with the selected name or attributes with the selected name and type. This is because attributes may have the same name in different classes, but not the same type.

To autolink:

- Select **Link** > **Autolink** from the **Collection** menu.

Collection Name Autolink

To perform a collection name autolink:

1 Select **Collection Name**.

2 Select the link scope.

3 Select the attribute options.

4 Click **Link**.

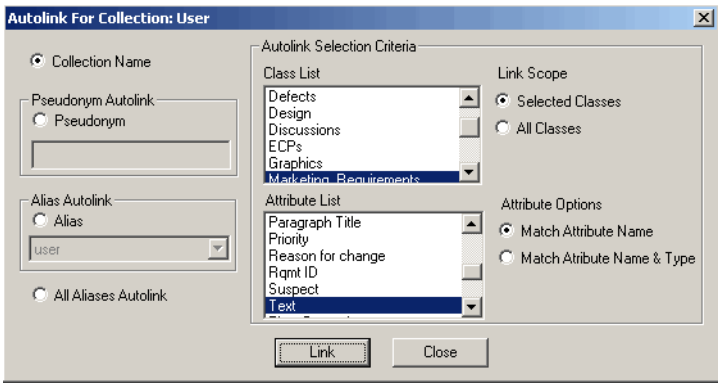

Figure 3-33. Autolink

Collection Aliases and Pseudonyms

Aliases and pseudonyms are text patterns used to locate objects to be linked to a collection. They are used during collection autolinking to search selected object attributes. Matching objects are linked to the collection. Aliases persist with your project until deleted. Pseudonyms exist only during the automatic link creation task in which they are defined; they are not stored in the Dimensions RM project. An all alias autolink links a collection to objects found by any of its aliases.

For example, aliases of the keyword "calibrate" might be "calibrated," "calibrating," or even the wild card string "cal*". Alias creation and deletion steps are outlined below. Using Aliases and pseudonyms in link creation is described below.

To create an alias for a collection:

1 Select the collection from the drop-down list of collections in the RM Concept toolbar. Be sure to select a child collection. You cannot link objects to parent collections.

2 Select **Create Alias** from the **Collection** menu. An alias is a text pattern that can be used in place of the collection name to autolink objects to a selected collection.

The **Create Alias** dialog opens.

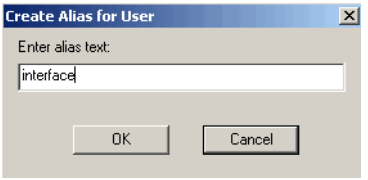

Figure 3-34. Create Alias

3 Enter the alias.

4 Click **OK**. The selected collection can be found in the collection drop-down list box displayed on the main toolbar. Click **Cancel** to prevent the alias creation.

To view or delete aliases for the currently selected collection:

1 Select **View/Delete Alias** from the **Collection** menu.

The **Aliases** dialog opens.

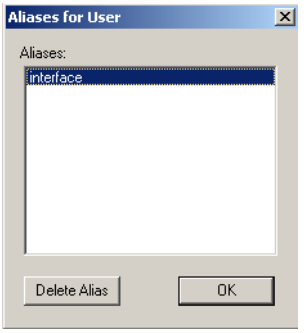

Figure 3-35. Aliases

2 To delete an alias, select the alias in the list and click **Delete Alias**.

3 Click **OK**.

To perform a pseudonym autolink:

1 Select **Pseudonym** in the **Autolink** dialog.

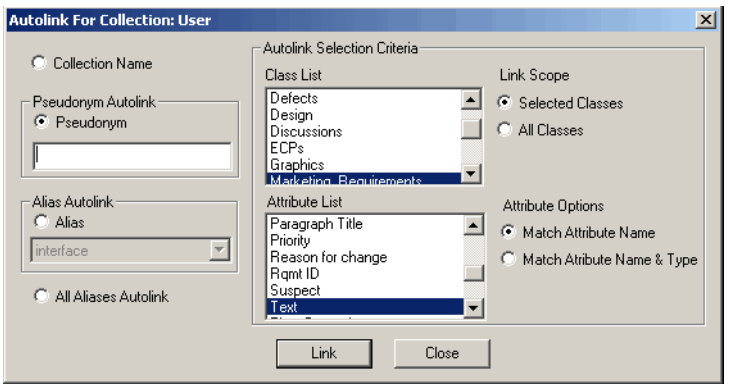

Figure 3-36. Autolink

2 In the pseudonym text box, enter the pseudonym text to be searched.

3 Select the link scope.

4 Select the attributes to search.

5 Click **Link**.

To perform an alias autolink:

1 Select **Alias** in the **Autolink** dialog.

2 Select the alias to be used for the text search from the drop-down list.

3 Select the link scope.

4 Select the attributes to search.

5 Click **Link**.

To perform an all alias autolink:

1 Select **All Aliases Autolink** in the **Autolink** dialog.

2 Select the link scope.

3 Select the attributes to search.

4 Click **Link**.

Setting Collection Link Rules

You can set the collection link rules. The default settings for collection link rules are as follows:

Setting	From	To
Transfer to child	Selected	Selected
Delete from Parent	Not selected	Selected
Transfer to Parent on deletion of Child	Not selected	Not selected

To set the collection link rules:

1 Select an object in form or grid view.

2 On the **Collection** menu, select **Modify Link Rules**. The **Modify Collection Link Rules** dialog box opens.

3 To enable a rule, select its check box, or to disable a rule, clear its check box.

Viewing Collections Associated with an Object

To view which collections an object is associated with:

1 Select the object in form or grid view.

2 On the **Object** menu, point to **Association**, and then click **Associated Collections**. The **Associated Collections** dialog box opens and displays a list of collections.

Working with Change Management

Change management support in RM Concept includes transactions that allow you to submit change requests against existing requirements, or to request new requirements. Built-in change management features support reviewing change records and accepting or rejecting requested changes. A high-level change management class type, called Engineering Change Proposal (ECP), can be used to collect multiple change requests into a single package.

Requesting a Change

To request a change to a current object in the system:

1 Select **Request** from the **Change** menu or click the **Change Request** button . The **Change Request** dialog is displayed with a list of attributes from the class, a **Reason for Change** text field, and an ECP drop-down list.

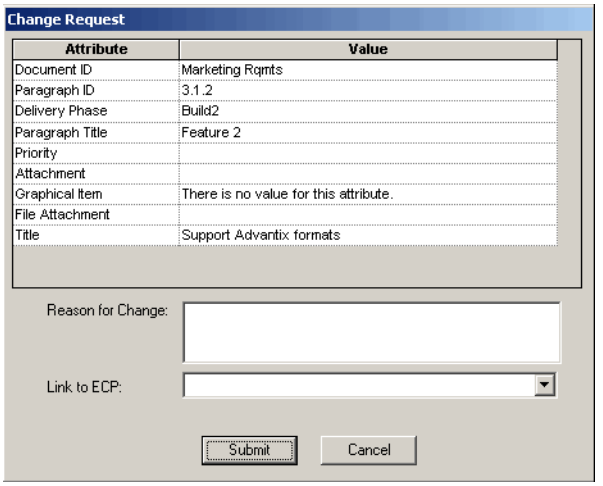

Figure 3-37. Change Request

2 To change a value, either type over the value or change the selection, depending on the field type. As changes are made, the text within the cell turns red to indicate that the value for the attribute has changed.

3 Enter a reason for the change in the **Reason for Change** text box. If this request was generated based on an ECP that has been entered into the system, you can select the ECP. When the change record is created, a link is created between the change record and the ECP object.

4 To submit the change request, click **Submit**. To cancel the request, click **Cancel**.

Requesting a New Object

To request a new object:

1 Select **New Object** from the **Change** menu or click the **Request New Object** button .

The **Change Request** dialog displays a list of attributes from the class, a **Reason for Change** text field, and an **ECP** drop-down list. The attribute values within the

attribute list are loaded with the default value for each attribute. To change a value, either overtype the value or change the selection.

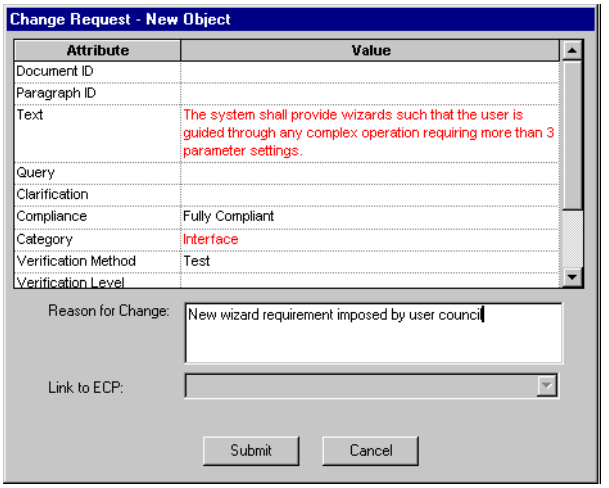

Figure 3-38. Change Request for New Object

2 Enter a reason for the request into the **Reason for Change** text box. If this request was generated based on an ECP, the ECP can be selected. When the change record is created, a link is created between the change record and the ECP object.

3 Click **Submit**.

Reviewing Change Requests

There are two ways to review change requests: ECP review and change request review. Both reviews are displayed through a split-screen window.

ECP Review

When change requests and new object requests are created, the change request object can be linked to an ECP class object. The ECP review displays a list of change requests associated with each ECP object. Through this process, RM Concept displays change records generated because of an ECP. This review is displayed in a split-screen mode. Objects of the selected ECP class that have change records linked to them are loaded in the top or left view.

Change requests that are linked to the ECP object are loaded in the bottom or right view. The change requests displayed in the bottom view are not editable. This view is strictly for reviewing the effects of an ECP. When change requests are proposed, they can be updated before being accepted or rejected, but they cannot be replaced. To enter the ECP review process, select **Review** and **ECP** from the **Change** menu.

Change Requests Review

You can list change requests generated for class objects by using the Change Requests Review operation. As objects are selected in the top or left view, the bottom or right view will load the change request records proposed against the current object in the top view. (You can view one class at a time.) Change requests can be modified in the review window by locking the change request object in the grid that is to be modified, changing

its data, and selecting **Update** from the **Object** menu item or the update toolbar button (requires update privilege on the class objects).

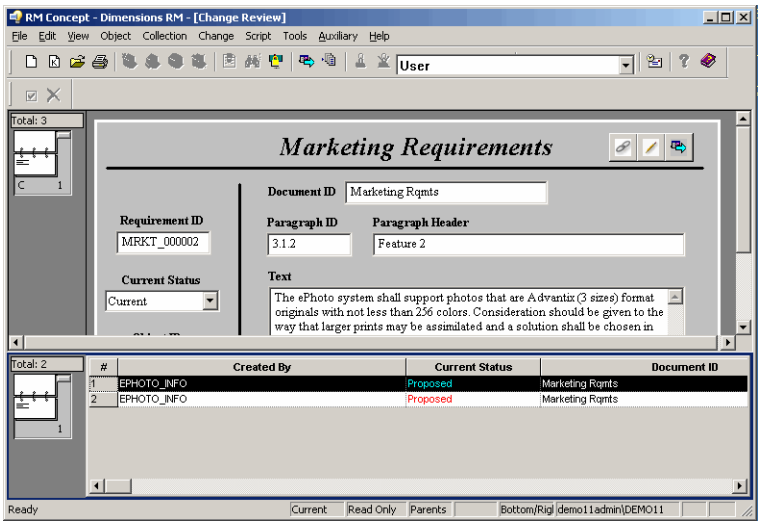

Figure 3-39. Change Request Review

Reviewing Proposed New Objects

The grid shown initially for reviewing change requests does not show new object requests.

To review new object requests:

1. Select **Review** and **Requests** from the **Change** menu.
2. Select objects in the top/left form for which you want to review change requests.
3. Right-click in the grid on the bottom/right and select **Display New Object Requests**.
4. You can switch back to the change requests list by selecting **Display Change Requests**.

Accepting a Change Request

To accept a change request for the currently selected object:

1. Select the change request in the bottom/right pane.
2. Select **Lock for Edit** from the **Edit** menu.
3. Select **Accept** from the **Change** menu or click the **Accept** button ☑.
4. Select **Release Lock** from the **Edit** menu.

When a change request is accepted, the selected object is replaced with the selected change request. If there are multiple change requests, any requests that have not been rejected are linked to the new object created by the replace. Therefore, unaccepted requests should be rejected, or they will be linked to the new object. For traceability, the replaced object is still linked to any change request, whether the request was accepted or rejected.

Rejecting a Change Request

To reject a change request:

1. Select the change request object in the bottom/right pane.
2. Select **Lock for Edit** from the **Edit** menu.
3. Select **Reject** from the **Change** menu or click the **Reject** button .
4. Select **Release Lock** from the **Edit** menu.

When a request is rejected, it can no longer be accepted. The request will not be linked to the new object that is created when a request is accepted (assuming there are multiple requests for the same object).

Working with Scripts

Scripts are used in RM Concept to retrieve data from the database and format the view of the data retrieved. The data are originally displayed in a spreadsheet, but can be saved to multiple formats that can then be loaded in the format's native application (for example, Microsoft® Word or a Web browser). The script language syntax is described in "Script Syntax" on page 404.

The script generator wizard can create scripts for most types of reports. There are elements of the script language syntax that cannot be generated by the wizard. For example, the script wizard does not handle prompting, script variables, script comments, or simple calculation operations. Scripts requiring these features must be manually edited.

Scripts that you can create in the wizard retrieve objects of a single class, and objects participating in specific relationships. You can also combine these things in a single script.

NOTES

- Traceability reports are presented as scripts in RM Concept.
- Filters are scripts that include only one class. RM Concept does not support filters that contain runtime values (prompting).

Creating a Script

NOTE If you do not have "Create" permission for scripts, you can create a script; however, you cannot save it.

To create a new script:

1 Select **Create** from the **Script** menu. This starts the Script Generator wizard.

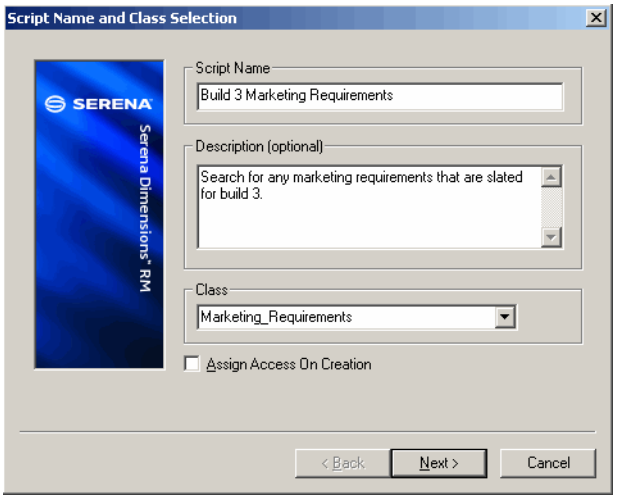

Figure 3-40. Script Name and Class Selection

2 In the **Script Name and Class Selection** dialog, enter the script name, a description, and select the first class of interest in the script.

3 Click **Next** to continue.

4 The next step is to select the attributes to be retrieved for each object to be selected by the script. The **Select Attributes** dialog offers the display names (as defined in Class Definition) of each attribute. Select each desired attribute by left clicking on its display name in the list.

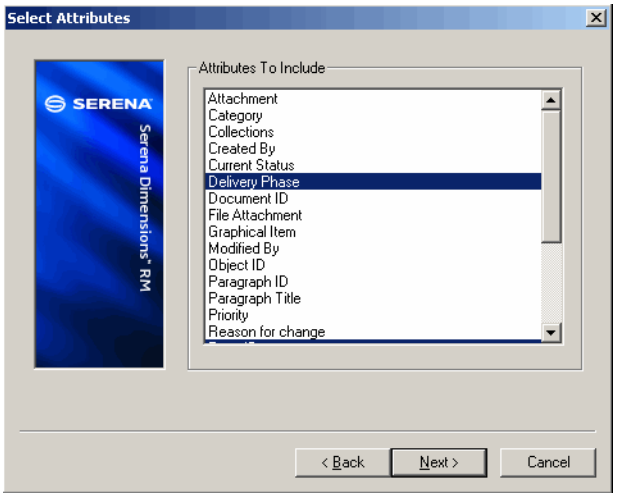

Figure 3-41. Select Attributes

5 After you have selected the attributes, use the **Display Properties** dialog to specify the order in which your selections are to be reported in the script output. The attribute display names as listed in the **Display Properties** page are used as column headings in the script output. You can rearrange them by selecting individual names and dragging them up or down to new positions. In addition, you have the options of changing the column heading to be used or disabling the display of each attribute.

NOTE The display names also translate to document style names for script output formats such as RTF. Using this feature, you can generate reports as Microsoft Word documents with all occurrences of particular attributes already in a specific style.

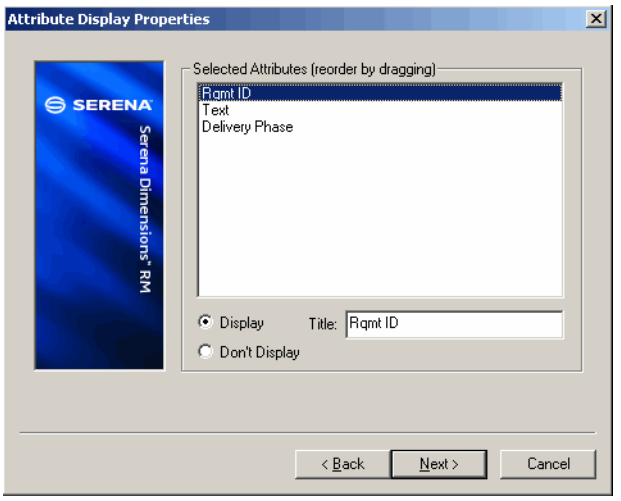

Figure 3-42. Attribute Display Properties

6 The final dialog in the wizard, **Filter, Sort Order, Relationship** allows you to specify filtering and sorting options, cross references to related classes, and to add more classes to your report.

- Specify the filtering options just as you specify filters for complex find operations. See "Filtering Data Using the Complex Find" on page 73 for details.
- Specify the sorting options as you would for simple finds. See "Adding Sort Criteria to the Selection Criteria" on page 71 for details.

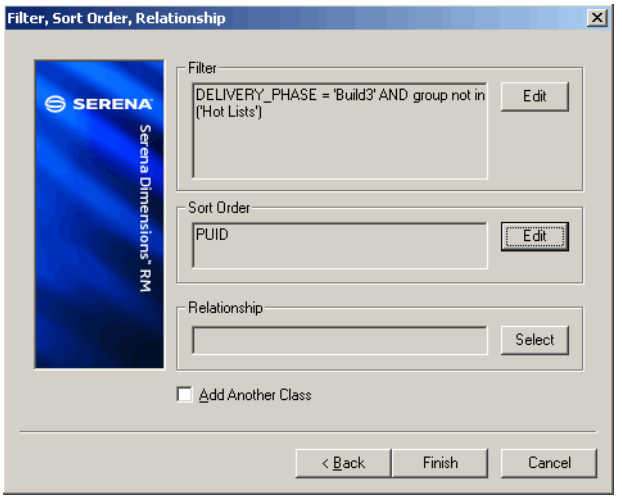

Figure 3-43. Filter, Sort Order, Relationship

7 To trace a relationship from your first class selection to another class, click the **Select** button at the right of the **Relationship** box. The **Select Relationship** dialog includes

only those relationships that have been defined for the class that you selected in the first wizard dialog (**Script Name and Class Selection**).

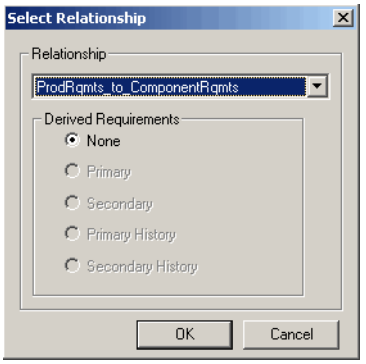

Figure 3-44. Select Relationship

After you select a relationship in the **Relationship** drop-down list, click **OK**, and then click **Next** in the wizard, the wizard returns to the **Select Attributes** dialog. This dialog lets you select the attributes to be displayed for the linked objects of the related class.

8 To add another class to your report, select the **Add Another Class** check box at the bottom of the **Edit, Sort Order, Relationship** dialog. You can use this mechanism to build scripts that concatenate otherwise separate reports into a single report.

You can also create a script by loading it and making changes directly to the script in the edit box where the script is displayed. Select **Save As** from the **Script** menu. This is recommended only for advanced users because the script syntax is not checked until the script is run, so errors can be made in scripts that are edited by this method.

Editing a Script

To edit a script:

1 Select **Edit** from the **Script** menu. The **Edit Script** dialog opens.

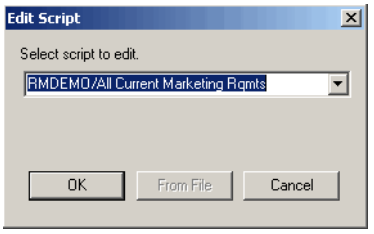

Figure 3-45. Edit Script

2 From the drop-down list, select the script to be edited.

3 Click **OK**. This starts the Script Generator wizard for editing the selected script.

You can also edit a script by loading it and making changes directly to the script in the edit box where the script is displayed. However, you should do this only if you are very familiar with the scripting syntax. This is recommended only for advanced users because the script's syntax is not checked until the script is run, so errors can be introduced in scripts that are edited by this method.

CAUTION! If you edit and save a script that is a traceability report, the traceability report becomes a regular script.

Loading a Script

To load a script:

1 Select **Load** from the **Script** menu. The **Load Script** dialog opens.

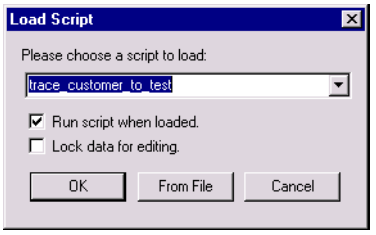

Figure 3-46. Load Script

2 Select the script to be loaded from the drop-down list.

3 Click **OK**.

- If the **Run script when loaded** box is checked, the script will be run when it is loaded into the script view in RM Concept.
- If the **Lock data for editing** box is also checked, the data will be loaded into the grid with each record being locked. This will lock other users from editing any of the data returned by the script, so select this option carefully. The script will be displayed in the edit box at the top of the view and the results of the script will be loaded into a grid.

Running a Script

If the **Run script when loaded** check box on the **Load Script** dialog is unchecked, the script is loaded into the script view's edit box, but the script will not be run.

To run a script:

- Select **Run** from the **Script** menu or click the run script button .

This runs the script that is currently in the edit box of the script view. The results will be loaded into the grid. This option will also be used to run the script if the script has been modified directly in the edit box.

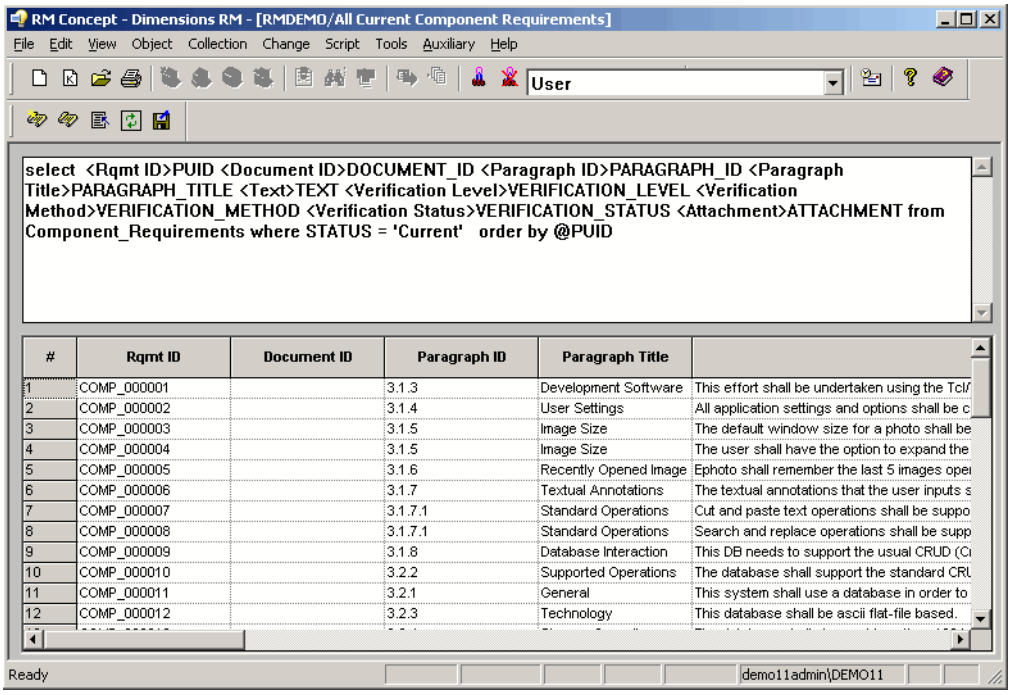

Figure 3-47. Script Dialog

Saving a Script

NOTE If you do not have "Create" permission for scripts, you can create a script; however, you cannot save it.

To save a script that has been modified directly in the edit box of the script view:

- Select **Save** from the **Script** menu or click the save script button . This saves any modifications to the loaded script in the edit box.

To save a script with a different name

1 Select **Save As** from the **Script** menu.

The **Save Script** dialog opens.

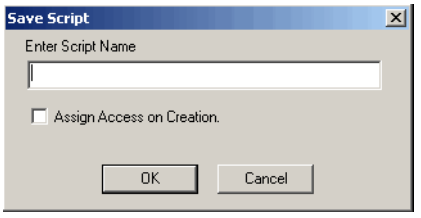

Figure 3-48. Save Script

2 Enter the new script name and click **OK**.

CAUTION! If you edit and save a script that is a traceability report, the traceability report becomes a regular script.

Saving a Script's Output to a Different Format

After a script has been loaded, you can run the script and save the data retrieved by the script. The results will be stored in the file system and not displayed in the RM Concept workspace.

To save the output of a script to a different format:

1 Select **Save As** from the **File** menu.

The **Save As** dialog opens.

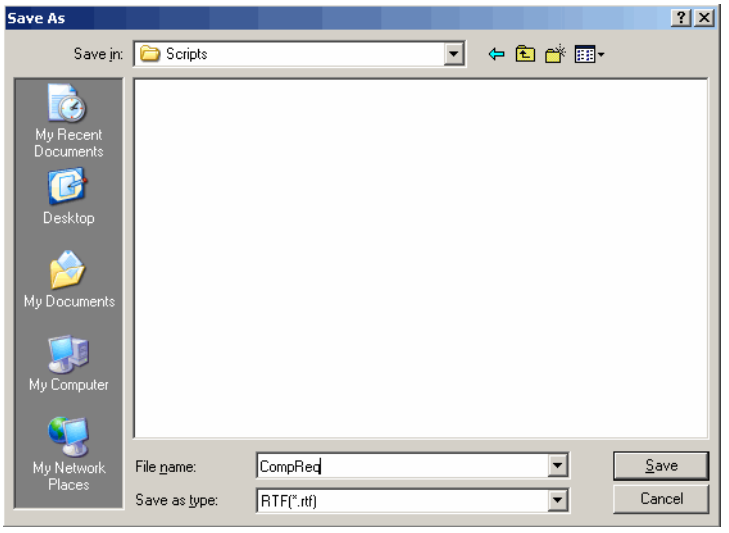

Figure 3-49. Save As

2 Select a filename, a file location, and a format.

3 Click **OK**.

NOTE The following format types are available: ASCII Table, Comma Separated Value (CSV), No Markup Type, RTF, RTF Table, SGML, SGML Table, HTML and HTML Table. The script text itself can be saved using the rmdoc format. When you save the script text, the script is not run.

Miscellaneous Functions

This section contains information about miscellaneous functions you can perform in RM Concept.

CSV Import

The CSV (comma separated value) Import utility is designed to allow you to import data from a comma separated value file into the Dimensions RM project database. The data can be imported into either a class or relationship for the selected project. For example, you may have an Excel spreadsheet that you want to export to Dimensions RM. You can save the spreadsheet in .csv format and bring it into Dimensions RM through the CSV Import wizard.

CAUTION! Dimensions RM generates and requires upon import a comma-quote delimited file. If the generated .csv file is modified in Microsoft® Excel®, Excel saves the file in comma-delimited format (without quotes). The CSV Import wizard will not accept such a file and will report that there are errors in the format of the file.

CSV Operations

When importing into a class the following operations are available:

- Create a new object for each row in the file.
- Update matching objects in the project database.
- Update matching objects in the project database—create a new object if no match is found.
- Replace matching objects in the project database.
- Replace matching objects in the project database—create a new object if no match is found.
- Delete matching objects in the project database.
- Undelete matching objects in the project database.
- Remove matching objects in the project database.

When importing into a relationship the following operations are available:

- Create a new link object for each row in the file.
- Break or unlink matching link objects in the project.

Creating Objects from a CSV File

To create new objects in the project database:

1 Select **Import CSV Data** from the **File** menu. The CSV wizard starts.

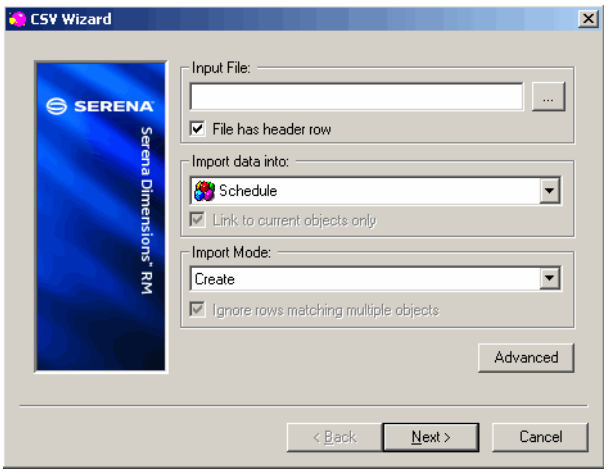

Figure 3-50. CSV Wizard

2 Type the path of the input file or click **Browse** to select an input file.

The input file is usually a Comma Separated File (`.csv`), which is the most common format you will import. Most spreadsheet applications have the capability to output

the data in this format. CSV files use commas to separate data in cells; for example, red, green and blue in the cell is formatted as **red,green,blue** in a text string.

You also can use other formats for importing files by clicking the **Advanced** button. For example, you can save the file as a "tab delimited" file, which uses tabs to separate data instead of commas. These files have a `.txt` extension. The CSV import wizard allows you to specify which delimiter is used.

3 Select the class into which the data is to be imported.

4 Select the operation to be performed on the data in the import file from the drop-down menu. The following options are available:

- **Create**—Create a new object for each row in the file.
- **Update Matching Records Only**—Update matching objects in the project database.
- **Update/Create When no Match Found**—Update matching objects in the project database, or create a new object if no match found.
- **Replace Matching Records Only**—Replace matching objects in the project database.
- **Replace/Create When no Match Found**—Replace matching objects in the project database or create a new object if no match found.
- **Delete**—Delete matching objects in the project database.
- **Undelete**—Undelete matching objects in the project database.
- **Remove**—Remove matching objects in the project database.

5 Click **Next**. The attribute constraint dialog opens.

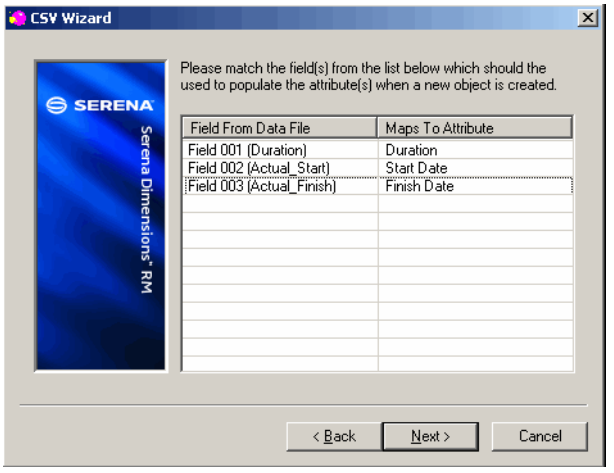

Figure 3-51. Attribute Constraint

The attribute constraint dialog maps the fields from the CSV file to the attributes of the object. The left column contains an entry for each field read from the input file. The right column displays the attribute that should be constrained with the value at that position in each row of the file. To specify which attribute should be constrained by a given field in the file, click the **Maps To Attribute** cell that is opposite the field and select the attribute from the drop-down menu. Note that an attribute can only be mapped to a single field in the file. Any fields that are not be used as search constraints should be left blank.

6 Click **Next**. The default value assignment dialog opens.

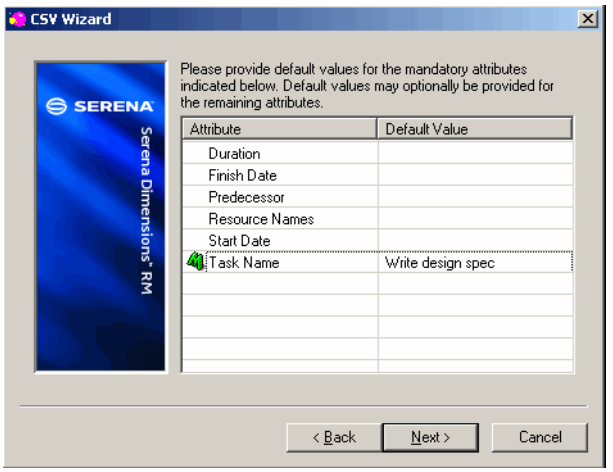

Figure 3-52. Default Value Assignment

The default value assignment dialog is used to assign default values to each of the attributes for the object. If an attribute is defined as mandatory, indicated by the symbol next to the attribute name, a default value must be provided so that the object can still be created, even if a value is not present in the file. You may optionally provide default values for all other attributes that will be used if the field in the file assigned to the object contains no value.

7 Click **Next**. The perform import dialog opens.

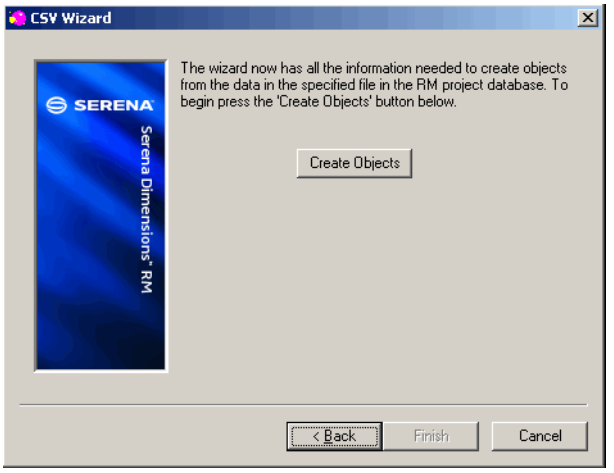

Figure 3-53. Perform Import

The wizard now has all the information it needs to read the data from the CSV file and modify the objects identified by each row in the file.

8 Click **Create Objects** to begin the import.

Once the import has completed, you will have the option to view the log information that displays the details of the objects that have been created. Click **Finish** to close the import wizard.

CSV Import Advanced Options

To display the **Advanced Options** dialog, click the **Advanced** button on the first page of the CSV Import wizard.

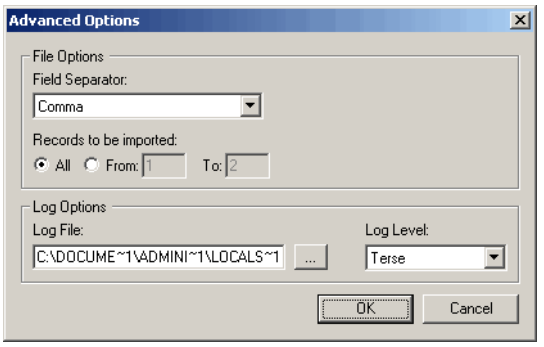

Figure 3-54. Advanced Options

The **Advanced Options** dialog allows the following configuration parameters to be set for the CSV Import wizard:

- **Field Separator**—Select the character to be used as the field separator in the input file from the list of options available on the drop-down menu.
- **Records to be Imported**—In the **From** and **To** fields, specify whether all the rows from the file are to be imported, or a selected row.
- **Log File**—Specify the log file.
- **Log Level**—Configure the log output. The default value, **Terse** provides only a minimal description of the objects changed, while **Verbose** displays all attribute values for each object modified. Note that when using **Verbose**, the log file can grow to be very large.

Batch Update Wizard

The Batch Update Wizard is designed to allow attribute values to be changed for all objects that match a set of attribute constraints for any one class defined in the project schema. When running the Batch Update Wizard the following operations are available:

- **Update Current Objects Only—**Updates all current objects that match the specified attribute constraints to the new attribute values provided.
- **Update All Objects—**Updates all objects that match the specified attribute constraints regardless of status with the new attribute values provided. You can update all objects only if this privilege has been given to you by the system administrator.
- **Replace Current Objects Only—**Replaces all current objects that match the specified attribute constraints and updates the attribute values to the new attribute values provided.
- **Delete Objects—**Deletes all current objects that match the specified attribute constraints.
- **Undelete Objects—**Undeletes all deleted objects that match the specified attribute constraints.

- **Remove Objects—**Removes all current objects that match the specified attribute constraints. This option destroys the matching objects permanently and cannot be undone.

To update or replace objects in the project database:

1 Select **Batch Update Data** from the **File** menu. The Batch Update wizard opens.

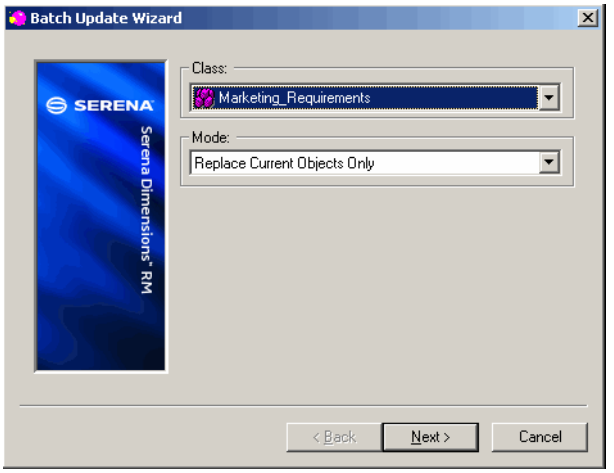

Figure 3-55. Batch Update Wizard

2 Select the class that contains the objects you want to modify from the **Class** list.

3 Select the operation to be performed on the objects from the **Mode** list.

The following options are available:

- **Update Current Objects Only**—Updates all current objects that match the specified attribute constraints with the new attribute values provided.
- **Update All Objects**—Updates all objects that match the specified attribute constraints regardless of status with the new attribute values provided.
- **Replace Current Objects Only**—Replaces all current objects that match the specified attribute constraints and with the new attribute values provided.
- **Delete Objects**—Deletes all current objects that match the specified attribute constraints.
- **Undelete Objects**—Undeletes all deleted objects that match the specified attribute constraints.
- **Remove Objects**—Removes all current objects that match the specified attribute constraints. This destroys the matching objects permanently and cannot be undone.

4 Click **Next**. The attribute constraint dialog opens.

Figure 3-56. Attribute Constraint

Use the attribute constraint dialog to provide values for the attributes used as constraints when searching for objects. Only certain attribute types can be constrained (for example, text in the Description attribute cannot be constrained). The left column contains an entry for each attribute defined for the class. The right column allows the constraint value to be defined for the attribute.

5 To add a constraint to an attribute, click the **Value** cell next to the attribute and enter the appropriate value. Any attributes that are not to be used as constraints when locating the objects should be blank.

Use the attribute value allocation dialog to specify values for each attribute to be changed. To set the attribute value, click the cell next to an attribute and select a value from the drop-down menu. Attributes left blank will not be changed when the object is updated.

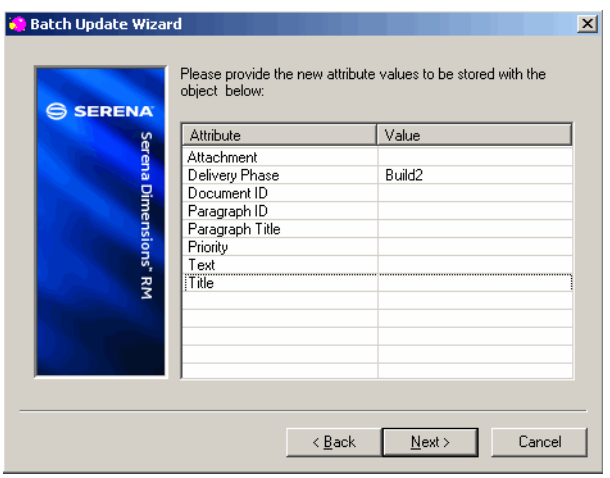

Figure 3-57. Attribute Allocation

6 Click **Next** to access the perform update dialog.

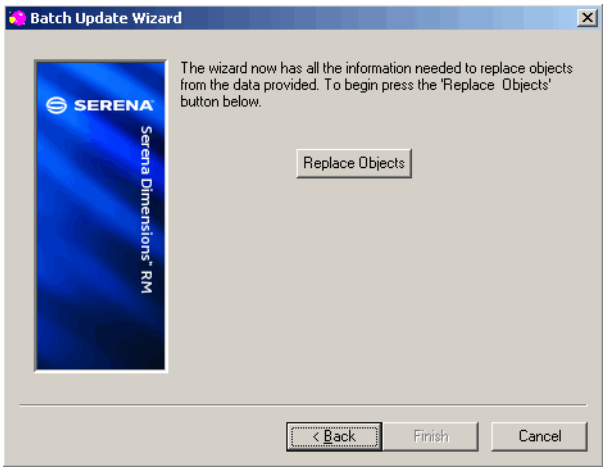

Figure 3-58. Perform Update

7 The wizard now has all the information it needs to update the objects. Click **Replace Objects** to begin the update. Once the update has completed, you can view the log that displays information about the objects that have been modified.

NOTE The button on the perform update dialog differs depending on the type of operation you are performing; for example, it will display **Update**, **Remove** or **Delete** when you perform these functions.

8 Click **Finish** to close the Batch Update wizard.

Auto Link Wizard

You can use the Auto Link Wizard to either create or break links in a specific relationship. The wizard allows you to set up constraints to be used to select the objects that are to be linked or unlinked.

To create or break links in a relationship:

1 Select **Relationship** > **Auto Link** from the **Object** menu. The wizard displays its first dialog to allow you to specify the relationship involved, the operation (link or break link), and to specify whether links for current objects only are to be modified.

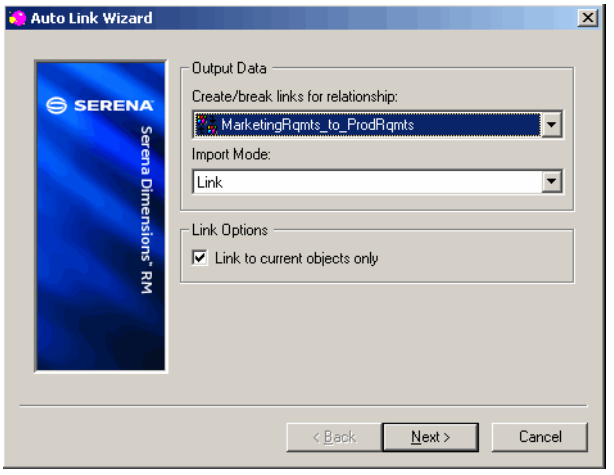

Figure 3-59. Input Information

2 Select a relationship from the **Create/Break links for relationship** drop-down list.

3 Select an import mode. This creates or breaks among the objects to be selected later. The following choices are available:

- **Link**
- **Unlink**

4 Select the **Link to current objects only** check box to create links only among current objects.

5 Click **Next**. The attribute constraint dialog opens.

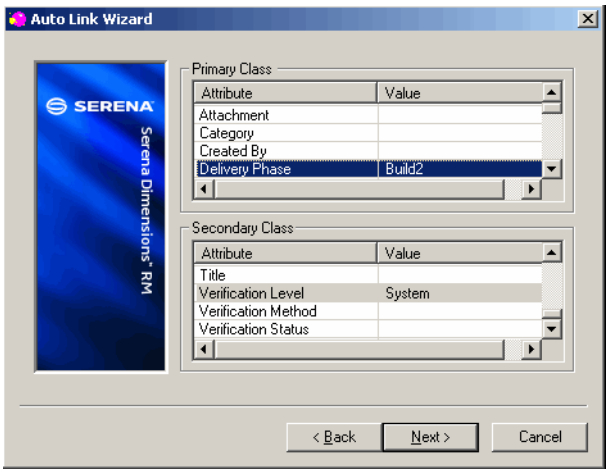

Figure 3-60. Attribute Constraint

6 Specify attribute values to be used as constraints in selecting objects of the primary and secondary classes.

7 To set an attribute constraint, click the cell next to an attribute and enter a constraint value or select one from the drop-down menu. Attributes that are not to be used as search constraints should be left blank.

8 Click **Next**. The perform link dialog opens.

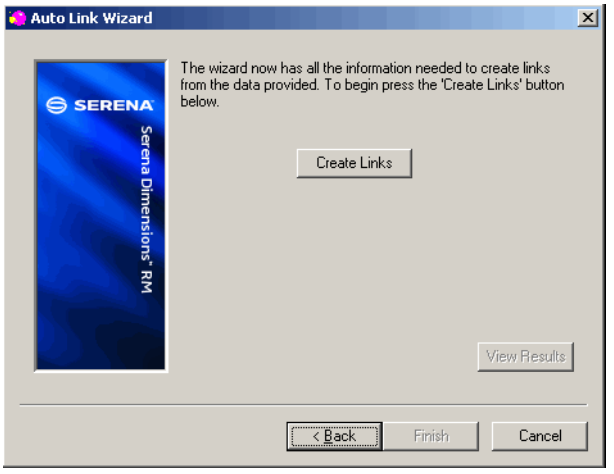

Figure 3-61. Perform Link

9 Click **Create Links** to begin the link creation process. When the import is completed you will have the option to view a log containing details of the links affected.

10 Click **Finish** to close the Auto Link wizard.

Breaking links with the Auto Link wizard is very similar to creating links with it. The only differences are that the import mode on the first dialog is set to **Unlink** and the button to perform the unlink operation is labeled **Remove Links**. Otherwise, relationship selection and attribute constraint specification is the same whether you are creating or breaking links.

E-Mail Notification

The e-mail notification feature allows you to register interest in certain types of changes within the project data and to receive electronic notices of those changes. Project administrators can enable or disable e-mail registration for entire projects, classes, and users. Administrator settings override individual settings made in RM Concept.

E-Mail Registration For a Project User

To edit e-mail registrations:

1 Select **e-mail Registration** from the **Edit** menu. The **Mail Registration** dialog opens.

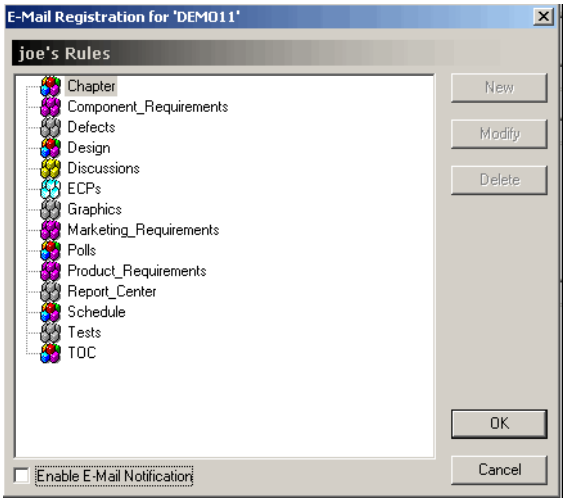

Figure 3-62. Mail Registration

The dialog displays a list of classes to which the user has read access. The plus (+) symbol indicates that a class has one or more associated rules. To see the rules defined for a class, click on the plus symbol to expand the branch.

2 Rules that are enabled have a check mark in the check box next to them, while rules that are disabled have an empty check box next to them. To enable or disable e-mail rules for a specific user, click in the check box to the right of the desired rule.

3 To enable or disable a rule, check or clear the **Enable E-Mail Notification** check box. Disabling rules does not delete the rules; it simply prevents the mail service from processing them.

Creating a New Rule

The following sections describe the E-Mail Rules wizard, which guides you through the creation of a new rule.

1 In the **Mail Registration** dialog, select the class for which the rule should be created.

2 Click the **New** button to start the E-Mail Rules wizard.

Naming the Rule

1 Provide the name for the rule in the naming rules dialog.

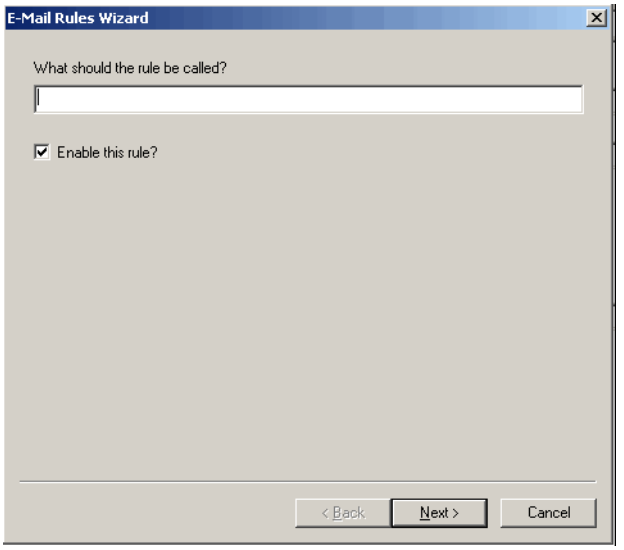

Figure 3-63. Naming Rules

2 Configure whether the rule should be initially enabled or disabled.

3 Once all the values have been filled in, click **Next** to proceed to the next screen.

4 To return to a previous step and make changes, click **Back**. Click **Cancel** to cancel the new rule operation.

Defining the Trigger Condition

The second step of creating a new rule is to define the triggering condition for when the e-mail should be sent.

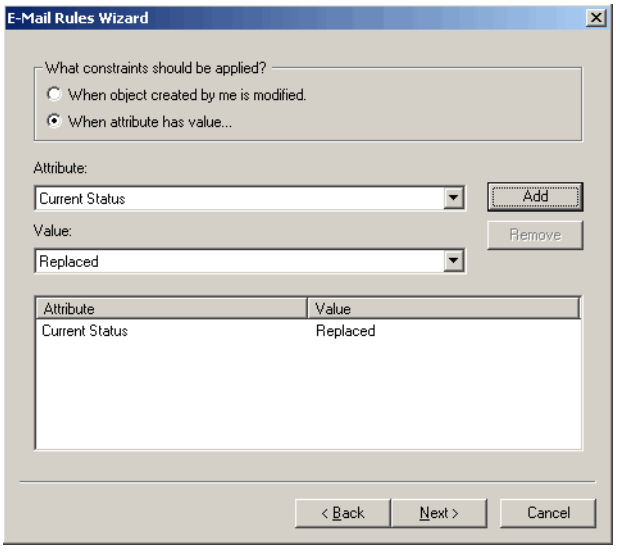

Figure 3-64. Defining Triggers

The triggering condition falls into the following two broad categories:

- **When object created by me is modified**

  This option should be chosen if you want to be notified whenever an object that you created has been changed. This will cause an e-mail to be sent to you regardless of what the change was. If this option is selected the remainder of the items on the page are hidden since they are no longer applicable.

- **When attribute has value...**

  This option allows you to specify that an e-mail should only be sent if the specified set of constraints are met. To add constraints, select the attribute from the **Attribute** drop down menu, and then the value that the object needs to have before an e-mail will be sent from the **Value** drop down menu. Multiple constraints can be added, and these constraints will be logically "and-ed" together to determine whether an e-mail should be sent. Constraints can only be added to list attributes.

Defining the Attributes to be Monitored

If **When attribute has value...** was chosen in the previous step, it is now necessary to determine which attribute should be monitored for a change in value. The mail service will only process a rule if the values for the attribute(s) selected in this step change.

In this example the rule will only be processed if the value of the **Current Status** attribute changed.

Note this page will not be displayed if you selected **When object created by me is modified** in the previous step, because an e-mail is then sent regardless of what attributes changed.

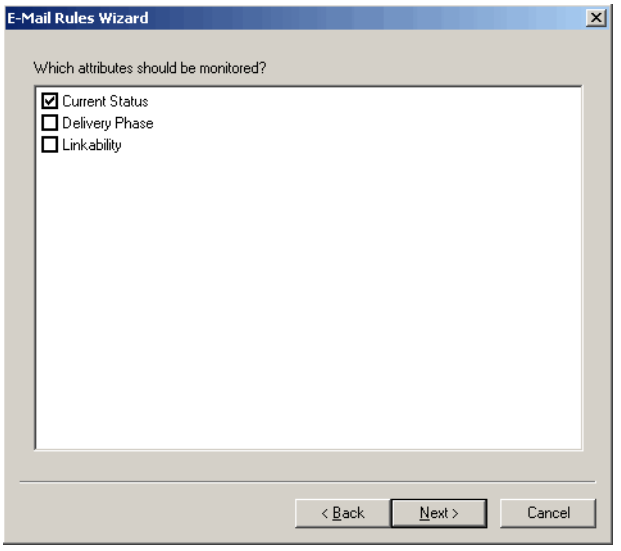

Figure 3-65. Attribute Selection

Selecting the Attribute to Include in the E-mail

Finally you need to specify which attributes are to be included in the e-mail. The list on the left contains a list of attributes that may included with the e-mail, while the list on the right displays a list of attributes that have been selected for inclusion.

To add an attribute to the list of attributes included with the e-mail, either double-click on the attribute in the left hand list, or select the attribute and click **Add**. To remove an

attribute from the list of attributes included with the e-mail either double click the attribute on the right hand list, or select the attribute and click **Remove**.

Dragging and dropping the attributes in the **Displayed Attribute** list will change the order in which the attributes are included in the e-mail. Note that the attributes will be included in the e-mail in the order they appear in the **Displayed Attribute** list.

The values for administrator-defined attributes will be included in the e-mail before the attributes that you select to display when creating a rule.

If **Display <null> for Null values** check box is checked, the string "<Null>" will be included next to the attribute display name in the e-mail if the attribute does not have a value assigned to it. If it is unchecked, nothing will be displayed after the attribute display name.

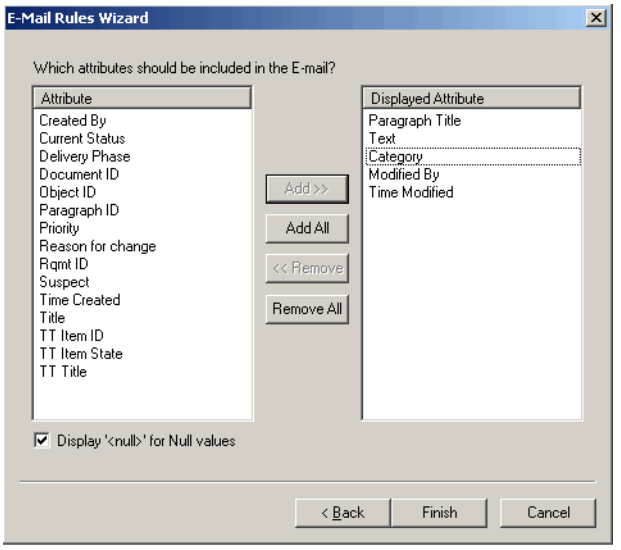

Figure 3-66. Specifying Attributes

In summary, the rule created here will only be processed if the **Current Status** attribute has been changed to **Deleted**. If this is true, an e-mail will be sent containing the values for the attributes **PUID**, **Paragraph ID**, and **Text** along with the values for the attributes that the administrator selected for inclusion in the e-mail.

Modifying a Rule

To modify a rule, locate the rule in the tree and select it. Press **Modify** to run the E-Mail Rules Wizard described in the preceding sections.

Deleting a Rule

To delete a rule, select the rule in the true, and click **Delete**.

Printing

The following sections describe how to print from Dimensions RM.

Print Setup

1 To modify the print setup, select **Print Setup** from the **File** menu. The **Print Setup** dialog opens.

2 Select a printer, set the paper orientation attributes, and view the printer's status.

3 Click **OK**.

Print Preview and Print

Print Preview lets you view what will be printed prior to printing.

1 To preview a print job, select **Print Preview** from the **File** menu.

2 To print, select **Print** from the File menu or click the **Print** button .

3 Review the options and click **OK** to print.

Viewing and Editing User Options

The **Options** dialog allows you to set values for general viewing preferences and default filter preferences.

Display Options

To display general viewing preferences:

1 Select **Options** from the **Tools** menu. The **Options** dialog opens.

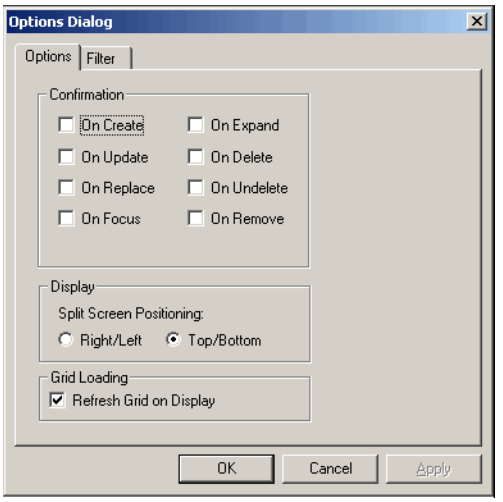

Figure 3-67. Options Dialog—Options Tab

2 Specify viewing preferences.

The viewing preferences are described in the following table.

Option	Description
On Create	If checked, RM Concept prompts you to confirm object creation before saving new object data in the project.
On Update	If checked, RM Concept prompts you to confirm object updates before saving new object data in the project.
On Replace	If checked, RM Concept prompts you to confirm object replaces before saving new object data in the project.
On Focus	If checked, RM Concept prompts you to confirm object focus before modifying data in the project.
On Expand	If checked, RM Concept prompts you to confirm object expansion before saving new object data in the project.
On Delete	If checked, RM Concept prompts you to confirm object deletion before deleting objects from the project.
On Undelete	If checked, RM Concept prompts you to confirm object un-deletion before reinstating deleted objects in the project.
On Remove	If checked, RM Concept prompts you to confirm object removal before removing objects from the project.
Split Screen Positioning	Controls display for relationship, expand, focus, and change request review. Right/left gives you a vertical organization. Top/bottom gives you a horizontal organization.
Grid Loading	If selected, RM Concept reloads data from the project when switching from form to grid view. If cleared, cached data is displayed. Turning this option off allows you to use the grid for normal operations and as a list. When this option is turned off, you can load the grid and select an object, go to form mode to edit the object, and go to grid mode without reloading all of the data in the grid. This may mean that the display may not be completely up-to-date. In situations where you are certain of the data's currency or are not concerned about it, delaying the grid reload can save time.

Filter Options

The **Filter** tab on the **Options** dialog allows you to set the default sort to use either the PUID or the object ID. Objects returned by a Find are sorted by the selected attribute if no sort order is defined in the Find.

To display filter preferences:

1 Select **Options** from the **Tools** menu. The **Options** dialog opens.

2 Click the **Filter** tab.

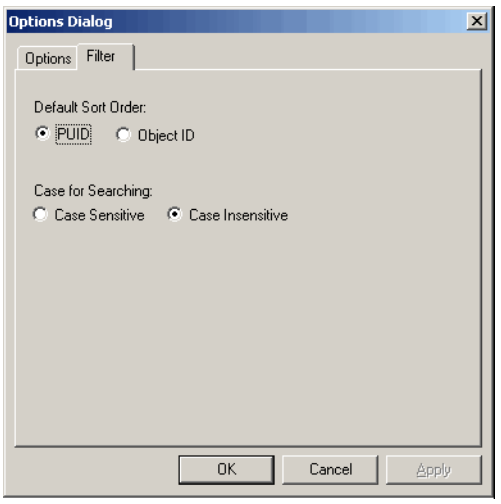

Figure 3-68. Options Dialog—Filters Tab

3 Specify filter preferences.

Lock Management

Dimensions RM classes, objects, collections and source documents are implemented as sets of values within database tables. The set of values that defines a single object or collection is referred to as a *record*. When records are locked, they cannot be modified. Records may become locked after a system crash. Lock management is provided as a means of freeing records that have been locked as a result of a system crash. It is also desirable to lock records temporarily to prevent others from changing the contents while other actions take place. Lock management also provides a way to lock those records that should not be changed. CM Lock operations freeze objects so that they cannot be modified.

For security, only those records that are locked by the current user are available to unlock. If the current user has been granted Unlock privileges, all the user-locked records are available to unlock. Only users who have been granted CM Lock privileges are allowed to lock records for CM purposes. Only users who have been granted CM Lock privileges are allowed to unlock CM locked records.

NOTE You cannot use CM Lock to unlock objects that are baselined.

Locking Objects

The Configuration Management (CM) Lock makes objects read-only and stops records from being updated.

To lock objects:

1 Select **Administer Locks** from the **File** menu.

The **Lock Manager** dialog opens.

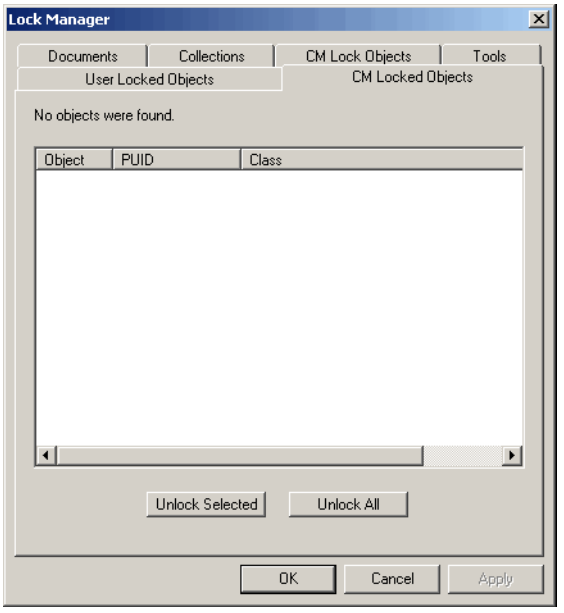

Figure 3-69. Lock Manager

2 Select the **CM Lock Objects** tab.

3 Select a class from the class list.

4 Select the objects you want to lock from the object list.

5 Select **CM Lock Selected** to lock only the selected objects. Select **CM Lock All** to lock all of the objects for the selected class and click **OK**.

NOTE You can also CM Lock objects when you are viewing them as script results. To CMLock objects in a grid view of script results, select each row that you wish to lock and select **CM Lock Records** from the **Edit** menu.

Unlocking Objects, Documents, Collections, and Tools

To unlock objects, documents, collections, and tools:

1 Select **Administer Locks** from the **File menu**.

The **Lock Manager** dialog opens.

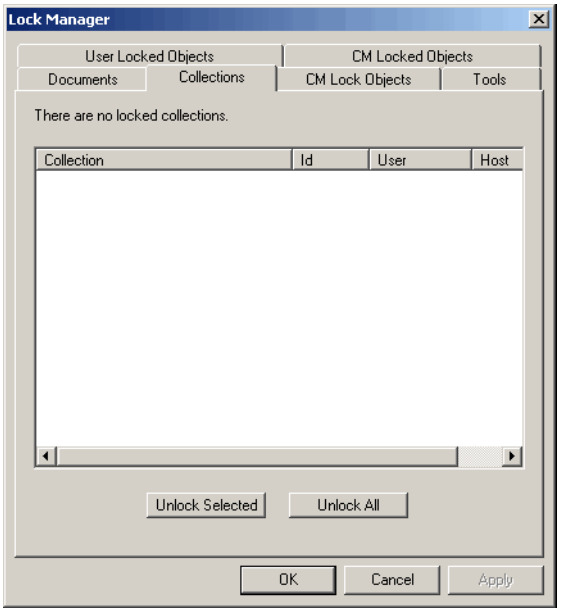

Figure 3-70. Lock Manager

2 Select the **User Locked Objects, CM Locked Objects, Documents**, **Collections** or **Tools** tab as appropriate.

3 Select the locked items you want to unlock from the list.

4 Select **Unlock Selected** to unlock the selected items.

5 Select **Unlock All** to unlock all the locked items.

Starting Other Tools

RM Concept provides a convenient way to start other Dimensions RM tools, including the administrative and desktop publishing tools.

Starting Class Definition

To start the Class Definition tool:

- Select **Class Definition** from the **Tools** menu.

  Class Definition is available in read-only mode if invoked as a regular project user from RM Concept. Class Definition is available in read/write mode if invoked while you

are logged on as a project administrator from RM Concept. If changes are made to the Class Definition while RM Concept is still running, the RM Concept tool lock must be removed when saving changes to the Class Definition. Changes to the Class Definition will not be reflected in RM Concept until the tool is restarted.

Starting RM Manage

To start RM Manage:

- Select **RM Manage** from the **Tools** menu.

Starting RM Word

To start RM Word:

- Select **RM Word** from the **Tools** menu.

You can also open any registered document by selecting **Open Document** from the **File** menu.

Starting RM Capture

To start RM Capture:

- Select **RM Capture** from the **Tools** menu.

Help

The following sections describe how to display Help for an attribute and how to display the RM Concept version.

Displaying Help for an Attribute

To display Help for an attribute:

1. Select the attribute (on a form view) or column (on a grid view) of interest.
2. Select **Attribute Description** from the **Help** menu or click the attribute description button . The **Attribute Description** dialog opens.

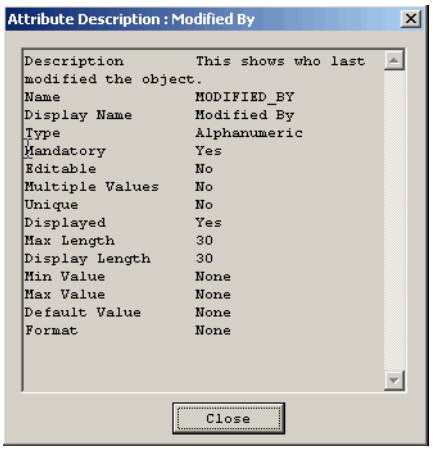

Figure 3-71. Attribute Description

NOTE For non-text type attributes such as numeric and list type attributes, you can also right-click the attribute field to display the **Attribute Description** dialog.

Displaying the Dimensions RM Help System

To display the Dimensions RM Help system:

- Click on the toolbar.

Displaying the RM Concept Version

The **About** dialog identifies the specific version number of the RM Concept.

To determine the current version of RM Concept:

- Select **About RM Concept** from the **Help** menu.

The **About** dialog opens.

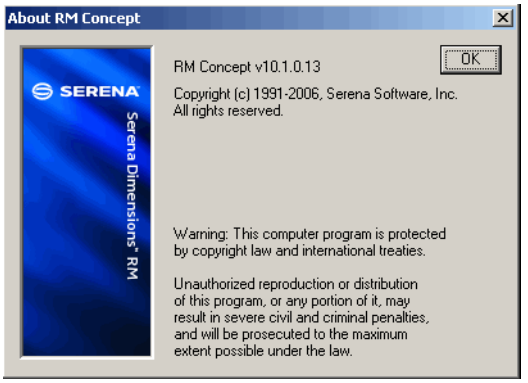

Figure 3-72. About RM Concept

Chapter 4

RM Explorer

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Overview

RM Explorer furnishes an intuitive user interface that is similar to Windows Explorer. Using RM Explorer, you can see the hierarchy of folders on your computer and all the files and folders in each selected folder. You can quickly view a project's scripts, test cases, documents, forms, pending actions, classes, collections, and relationships. Through RM Explorer, you can access other Serena® Dimensions® RM tools, such as RM Concept and RM Manage. RM Explorer is the starting point for anything you want to do in Dimensions RM. For example, you can use RM Explorer to open a document, design a form, write a script, import data and run a wizard.

Only the databases displayed in the user's *tnsnames.ora* file will be listed in the tree in the left window. (Users can have one or more Oracle databases.) The location of the *tnsnames.ora* file varies, depending on the platform you are using and whether you have Oracle installed locally. If your configuration is client only, the *tnsnames.ora* file is normally in *RTM_Home*. If a server is present on Windows NT, the *tnsnames.ora* file is normally in *Oracle_Home\Network\Admin*.

To access projects in a database, log on using a valid Dimensions RM user ID and password. Once the user ID has been validated, projects are listed as subfolders of the database. Any tools launched from Dimensions RM will use the current user, password, database, and project settings.

Tasks You Can Perform with RM Explorer

RM Explorer is a multi-purpose tool that you can use to navigate, maintain and view data in a Dimensions RM project. The following table describes the tasks you can perform with RM Explorer.

Task	Description
Accessing Projects	You can create and maintain information in a project folder, similar to the way folders and files are created and organized in Windows Explorer. Click the RM Explorer icon on your desktop to access your projects.
Browsing Project Content	To browse project folders, click a folder on the left side of the RM Explorer window. Its contents are displayed on the right side of the window. ■ Click the plus signs (**+**) to expand the tree. ■ Click the minus signs (**-**) to collapse the tree.

Task	Description
Overview of Project Definition	Projects may contain information from various sources, including classes, collections and scripts. The following types of information can be browsed in RM Explorer: ■ Classes ■ Collections ■ Documents ■ Forms ■ Pending Actions ■ Relationships ■ Scripts
Launching Other Tools	RM Explorer can launch other Dimensions RM tools using the current user, password, database and project settings. The following tools can be launched from RM Explorer: ■ RM Concept ■ RM Manage ■ Class Definition ■ RM Word ■ RM Capture ■ Import, Update and Auto Link Wizards

Navigation

The RM Explorer workspace uses folders and icons that make navigation and file management easy to use. Similar to Windows Explorer, you can double-click to open an item and use toolbars to view tools. You also can view properties of folders by right-clicking the mouse or change the appearance of items. The following describes some of the common navigation features.

- Click a folder on the left side of the window to display its contents on the right side.
- Click the plus signs (**+**) to expand the tree; click the minus signs (**-**) to collapse the tree.
- To quickly open a folder and display the folders inside, double-click the folder on the left side of the window.
- To quickly open an item, double-click the item on the right side of the window.
- To change the size of either side of the window, drag the bar that separates the two sides.
- To change the size of a column on the right, drag the column heading.
- To change the appearance of the list on the right, click the **View** menu. Choose **Large Icons** , **Small Icons** , **List** , or **Details** .
- To hide or show the main toolbar, select **Toolbar** from the **View** menu.
- To hide or show the status bar, select **Status Bar** from the **View** menu.
- To refresh the view from the database, select **Refresh** from the **View** menu or press the F5 key.

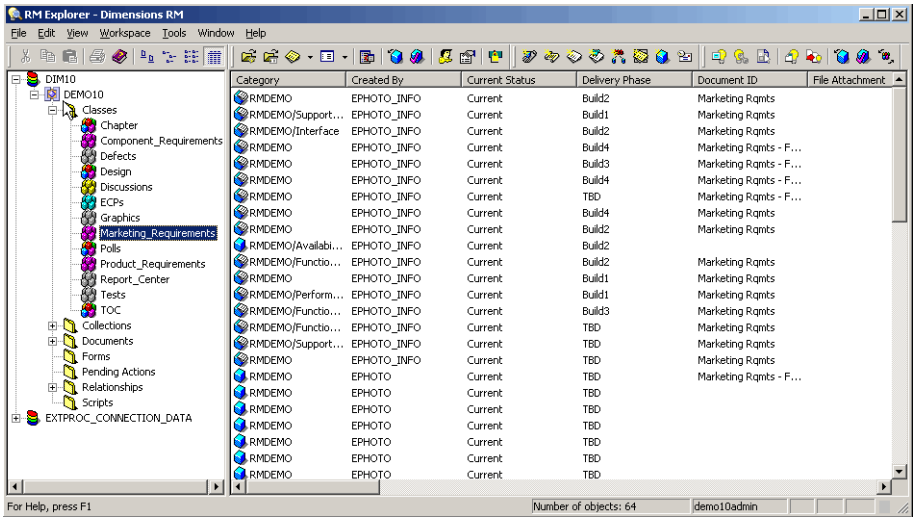

Figure 4-1. RM Explorer Window

Configuration

Information such as the location of Dimensions RM programs and data, is stored in the registry on the machine. The registry settings should be set when Dimensions RM is installed, but those values may be changed after installation.

Setting RTM_HOME

RTM_HOME is a logical name for the file system location of Dimensions RM programs and data. The value of RTM_HOME is normally set during installation. It can be changed so that you can execute a different client version if needed.

To set RTM_HOME:

1. Select **Options** from the **Workspace** menu.
2. Click the **Mandatory** tab.
3. Enter the RM location in the **RTM_HOME** field or browse to locate Dimensions RM.
4. Click **Apply**.

Setting ORACLE_HOME

ORACLE_HOME is the logical pathname of the file system or network location of your Oracle installation.

To set ORACLE_HOME:

1. Select **Options** from the **Workspace** menu.
2. Click the **Mandatory** tab.
3. Enter the Oracle location in the **ORACLE_HOME** field or browse to locate Oracle.
4. Click **Apply**.

Setting the Header Text

The header text is placed at the top of printed pages.

To set the header text:

1. Select **Options** from the **Workspace** menu.
2. Click the **Optional** tab.
3. Enter the text of the header in the **Header Text** field.
4. Click **Apply**.

Setting the Footer Text

The footer text is placed at the bottom of printed pages.

To set the footer text:

1. Select **Options** from the **Workspace** menu.
2. Click the **Optional** tab.
3. Enter the text of the footer in the **Footer Text** field.
4. Click **Apply**.

Setting the License Server

RM has a process by which all machines connect to a single computer by using a unique host name. The computer that has the host name is called the *license server*.

To set the license server:

1. Select **Options** from the **Workspace** menu.
2. Click the **License** tab.
3. Enter the name of the license server in the **License Server** field.
4. Click **Apply**.

Setting the Location of the Database Password File

The database password security file (`security.dat`) contains a security token and the encrypted database password for the Oracle users ICADMIN and ICPROJECTS. If an administrator changes the default location of this file, you will be requested to modify the location.

To set the location of the security.dat file:

1. Open RM Explorer.

NOTE You do not need to log in to Dimensions RM to perform this task.

2. Select **Workspace > Options**.

   The **Workspace Options** dialog opens.

3. Click the **Security** tab.
4. In the **Security File** box, type the full path to the `security.dat` file, or browse to it.
5. Click **OK**.

Databases

In the Dimensions RM environment, a database represents an instance of Oracle. Each database can contain multiple Dimensions RM projects. The databases displayed in the tree in the left side of the RM Explorer window are determined by the contents of the *tnsnames.ora* file found on your client machine. Oracle uses the *tnsnames.ora* file to locate servers on the network and is part of Oracle's configuration wizard.

In Dimensions RM, user IDs are associated with databases so that a user can access more than one Dimensions RM project within a single database. Before accessing the projects contained in a database, log on using a valid Dimensions RM user ID and password. The assigned projects are available when the user ID has been validated.

Logging on to a Database

To log on to a database:

1 Click a database name or expand the database folder.

2 Enter a valid ID and password.

If you are required to change your password at the next logon, Dimensions RM prompts you to enter a new password at this time. If your user ID has been validated, the assigned projects are available.

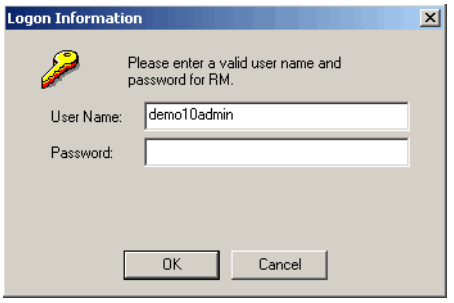

Figure 4-2. Logon Information

Logging On as a Different User

To log on as a different user:

1 In the left window of RM Explorer, select the database to which you want to log on.

2 Select **Change User** from the **File** menu, or click the **Change User** button .

3 Enter the new user ID and password.

4 Click **OK.**

Changing User Passwords

To change your password:

1 Log on to a database.

2 Select a database.

3 Select **Change User Password** from the **File** menu, or click the **Change User Password** button .

4 Enter a new password.

5 Confirm the password.

6 Click **OK**.

Projects

In the Dimensions RM environment, a project represents a work area in which information is created and maintained. User IDs are associated with databases. Projects are contained within databases. Only assigned projects will be available.

Classes

A class is a container for related types of information. The project administrator defines classes for a project.

Opening a Class

To open a class:

1. Select the class you want to open.
2. Select **Open** from the **File** menu, or click the **Open** button .

Opening a Class with a Class Form

To open a class with a class form:

1. Select the class you want to open.
2. Select **Open with class form** from the File menu, or click the **Open with Class Form** button .
3. Select a class form from the list or select **Generated Form** to open the class using the default form.

Opening a Class with a Grid Layout

To open a class with a grid layout:

1. Select the class you want to open.
2. Select **Open with grid layout** from the **File** menu, or click the **Open with Grid Layout** button .

Setting a Default Form for a Class

To set a default form for a class:

1. Select the class for which you want to set a default form.
2. Select **Properties** from the **File** menu, or click the **Properties** button .
3. Click the **Default Form** tab.

4 All of the grid layouts that have been defined for this class are displayed in the list. Select the form to be used as the default, and then click **OK.**

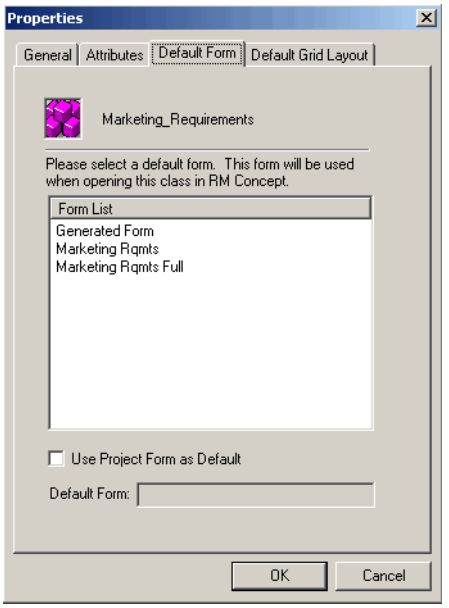

Figure 4-3. Setting a Default Form for a Class

Setting a Default Grid Layout for a Class

1 Select the class for which you want to set a default grid layout.

2 Select **Properties** from the **File** menu, or click the **Properties** button .

3 Click the **Default Grid Layout** tab.

4 All of the forms that have been defined for this class are displayed in the list. Select the form to be used as the default, and then click **OK**.

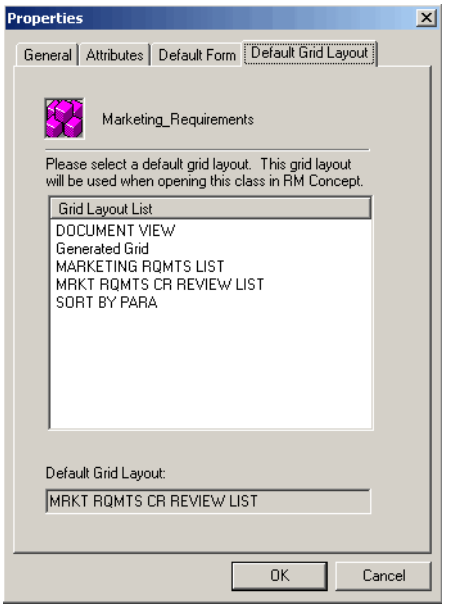

Figure 4-4. Setting a Default Grid Layout for a Class

Administering Class Filters

When you select a class, objects that have been created for that class are displayed. By default, all objects for that class will be loaded. If you have a different filter, Dimensions RM warns you that the action may take a long time, depending on the number of objects that must be retrieved. You can choose to cancel the action at that time, or choose to create a filter by selecting **Create Filter**.

To select a subset of objects for a class, you may define filters for each class that can be used when retrieving the objects. More than one filter can be defined, but only one can be set as the default filter to be used.

To define a class filter:

1 Select the class for which you want to define a filter.

2 Select **Filters** > **Define Filters** from the **File** menu, or click the **Define Filters** button .

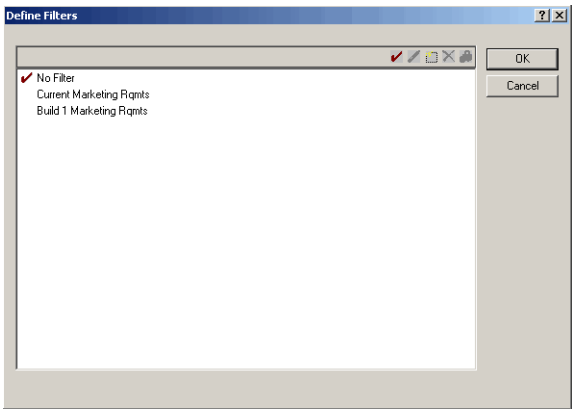

Figure 4-5. Define Filters

3 Click the **Add New Filter** button . This launches the script generator wizard. The first dialog in the wizard is **Script Name and Class Selection**.

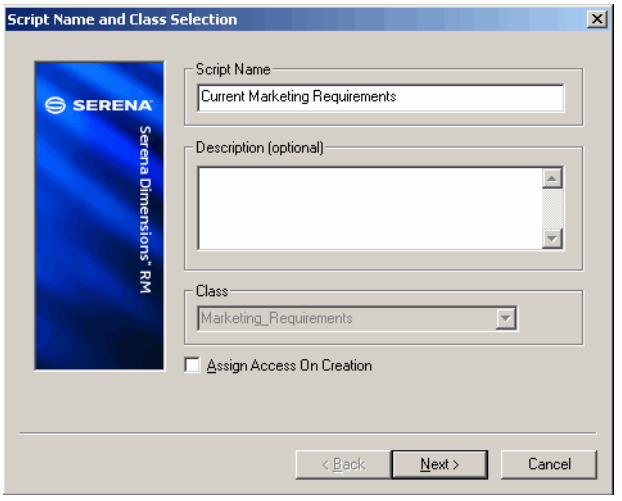

Figure 4-6. Script Name and Class Selection

4 Enter a name for the filter or script. The class name will already be selected on this screen.

5 Enter a description for the filter or script, as needed.

6 Select **Next** to advance to the **Select Attributes** dialog.

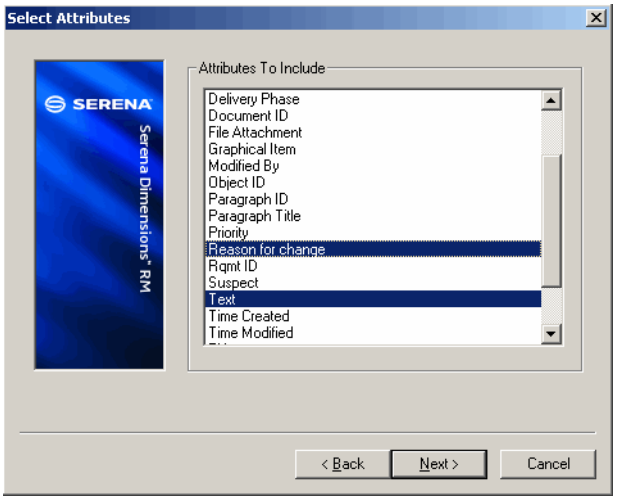

Figure 4-7. Select Attributes

7 Select the attributes that you want to retrieve.

8 Select **Next** to advance to the **Attribute Display Properties** dialog.

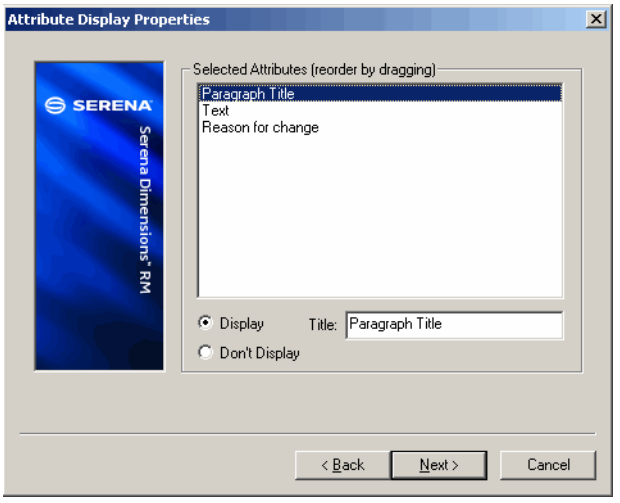

Figure 4-8. Attribute Display Properties

You may choose to display or not display any of the selected attributes by clicking the attribute name in the list and choosing the corresponding option. You also may change the column heading for any of the attributes by clicking on the attribute name in the list and typing the column heading in the **Title** field.

9 Select **Next** to advance to the **Filter, Sort Order, Relationship** dialog.

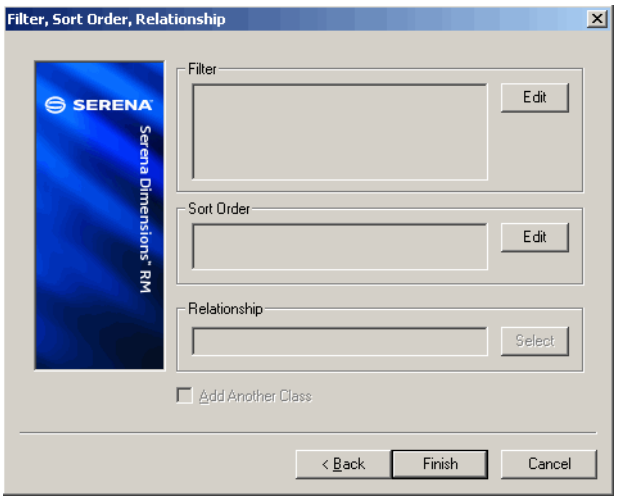

Figure 4-9. Filter, Sort Order, Relationship

10 Click **Finish** to return to the **Define Filters** dialog.

11 Click **OK** to save the class filter.

To edit a filter:

The **Edit Filter** dialog allows you to build logical expressions that provide selection criteria to choose a subset of objects for display or other operations.

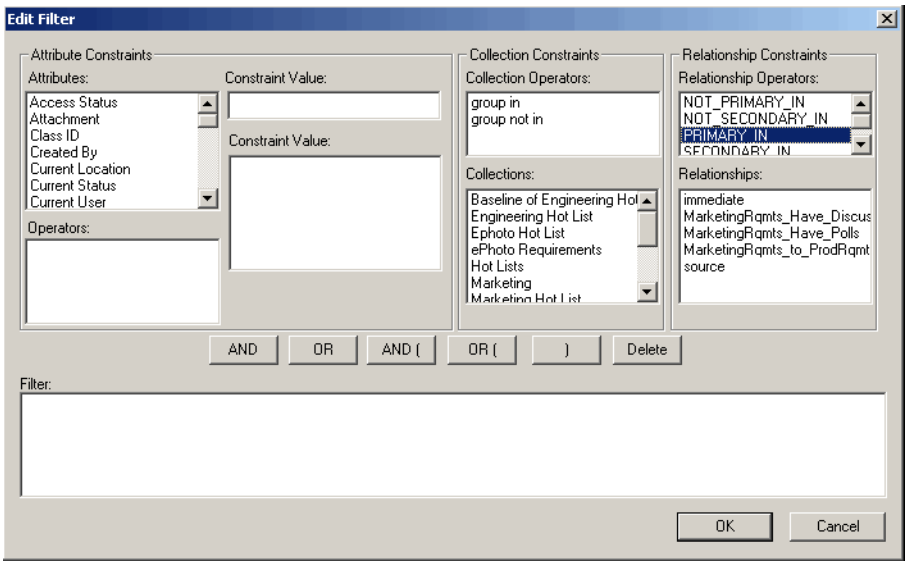

Figure 4-10. Edit Filter

There are four main sections in the **Edit Filter** dialog:

- The top row of boxes (attribute, collection, and relationship constraints)
- The middle row of labeled buttons (**AND**, **OR**, **AND (**, **OR)**, **)**, and **Delete**)
- The **Filter** box below the buttons
- The bottom row of operations (**OK** and **Cancel**)

To construct a logical expression to be used as a filter, combine one or more attribute, collection, or relationship constraints with logical operators. The resulting filter is a complex logical expression. For example, you might specify a filter to select first all objects of a particular class having certain values in an attribute, then any of those objects not linked to a particular collection, and finally, any of those objects, which happen to be secondary in a specific relationship. The resulting subset of objects is precisely determined using a filter. The following is an example of such a filter as it would appear in the filter display box:

Status = Current
AND group in ('baseline 17')
AND SECONDARY_IN SystemReqts_verified_by_Test

Attribute constraints describe desired attribute values or combinations of values to be selected. To specify an attribute constraint, choose the attribute name from the **Attributes** list, an operator from the **Operators** list, and then specify a value or a list of values in one of the constraint value boxes.

The attribute names are those defined for the class in the project schema. To define attribute constraints, you must know the data type of the attribute so that you can properly specify operators and constraint values. Specifying the constraint value requires either typing one or more values into the one-line box or, when the attribute that you have chosen is of a list type, selecting from a list of possible values in the larger box. The following table lists the attribute types that are used in Dimensions RM project schemas and identifies the constraint operators that can be used with each.

Attribute Type	Operators	Notes
Action	INITIALIZED, NOT INITIALIZED, =, !=	
Alphanumeric	=, !=, <, >, <=, >=, INITIALIZED, NOT INITIALIZED, in, not in	Mathematical operators apply to ASCII sort order
Date	=, !=, <, >, <=, >=, INITIALIZED, NOT INITIALIZED, in, not in	Mathematical operators apply to DATE sort order
Graphic	INITIALIZED, NOT INITIALIZED, in, not in	
List	INITIALIZED, NOT INITIALIZED, in, not in	
Numeric	=, !=, <, >, <=, >=, INITIALIZED, NOT INITIALIZED, in, not in	Mathematical operators have their normal mathematical meanings.
Text	INITIALIZED, NOT INITIALIZED, like, not like, in, not in	Use the * character as a wildcard indicating any set of characters, using the "like" or "not like" operator.

Collection constraints describe desired collection memberships to be used when selecting objects on which to operate. Two operators, "group in" and "group not in," enable you to specify whether the desired objects should be in or not in a particular collection. The collections listed in the **Collections** box below the operators are those defined for your project.

Relationship constraints describe desired arrangements of objects and the links among them. In Dimensions RM, relationships are defined as connecting a primary and a secondary class. In a relationship, the primary class is considered the origin of a directed line running to the secondary class. Links are said to originate at the primary object and terminate at the secondary object. The relationship operators, **PRIMARY_IN** and **SECONDARY_IN** are used to identify objects that are either at the origin or the termination of a link. The relationship operators **NOT_PRIMARY_IN** and **NOT_SECONDARY_IN** identify objects that may participate in such links, but do not. These operators are useful in locating objects that you are interested in linking. For example, given a relationship that connects system requirements to test cases, you could use these "not" operators to find requirements that are not associated with test cases.

The relationship names listed in the relationships box below the relationship constraints box are those defined in your project schema, with the addition of two special ones, "immediate" and "source." Both of these relationships are used in locating versions of objects. The "immediate" relationship refers to the immediate predecessor or successor of an object, and "source" refers to the original object in a chain of versions. To use these relationships in constructing constraints, combine them with operators as follows.

PRIMARY_IN immediate identifies versions of objects having successors
NOT_PRIMARY_IN immediate identifies versions of objects without successors (most recent versions)
SECONDARY_IN immediate identifies objects with predecessors
NOT_SECONDARY_IN immediate identifies objects without predecessors

PRIMARY_IN source identifies objects without predecessors
NOT_PRIMARY_IN source identifies objects with predecessors
SECONDARY_IN source identifies objects without successors
NOT_SECONDARY_IN source identifies objects with successors

To perform ASCII and Dewey sorts on attributes:

1. In the **Filter, Sort Order, Relationship** dialog click the **Edit** button next to the **Sort Order** field.

   The **Edit Sort Order** dialog opens.

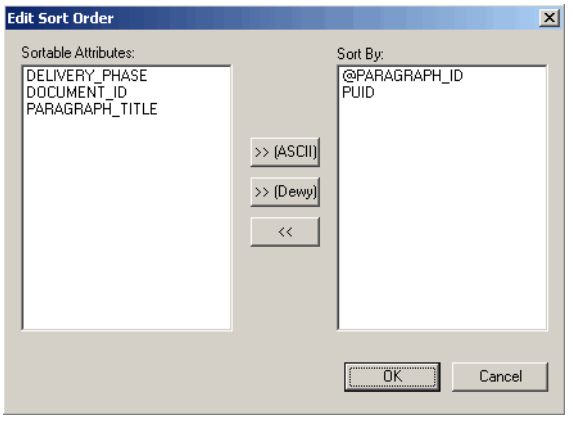

   Figure 4-11. Edit Sort Order

2. Select the attributes you want to sort in the **Sortable Attributes** field.
3. Click **ASCII** to sort by ASCII character or **Dewey** to sort by Dewey character.
4. Click **OK**.
5. Click **Finish** to close the **Filter, Sort Order, Relationship** dialog.

NOTE Click the **<<** button on the **Edit Sort Order** dialog to deselect a sort.

ASCII Sort

The ASCII sort is the standard sort used throughout the computing industry. Each character is given a numeric equivalent. For sorting, each character is converted to its numeric equivalent, and compared with the other characters in the same position of the string. For example:

A1, A02, A11, A15.1 and A20 would be ASCII sorted to the following:

A02

A1

A11

A15.1

A20

The ASCII sorts works in this fashion because of the numeric values in each position. The numeric value of 'A' is 65. All five of the strings have an 'A' at the start, so they are all in the correct order. The values of '0', '1' and '2' are 48, 49 and 50, respectively. 48 is less than 49, so '0' is before '1'.

Dewey Sort

It is quite common for reports to be ordered by attributes that have a Dewey decimal format (1.2.3.12), which is a system of classifying by designating a number with subdivisions shown by numbers after a decimal point.

A Dewey decimal code needs to have letters (upper or lower case) and numbers separated by a decimal point or a hyphen. A Dewey sort treats each grouping of letters, numbers and other characters separately and sorts each group equally.

For example:

A1, A02, A11, A15.1 and A20 would be Dewey sorted to the following:

A1

0000-000000000000000000000001)

A02

000-000000000000000000000002)

A11

000-000000000000000000000011)

A15.1

(A000000000000000000000000-000000000000000000000015---
000000000000000000000001)

A20

000-000000000000000000000020)

The sort process now treats numeric sections as numbers instead of characters. It does this by adding 0's onto each section to make the section equal in length to its companion sections. It will add up to twenty-five 0's to the end of any alphabetical character and to the start of any numeric character, balancing each section. Once the needed 0's have been added, an ASCII sort will be performed. The parenthetical section above demonstrates how the addition of the 0's works.

Limitations of the Dewey sort:

- Each section can be no longer than 25 characters.
- There can be only 50 sections.
- Sections are defined as any change of type (characters, numbers, special).

To edit a class filter:

1. Select the class for which you want to edit a filter.
2. Select **Filters** > **Define Filters** from the **File** menu, or click the **Define Filters** button .

   The **Define Filters** dialog opens.

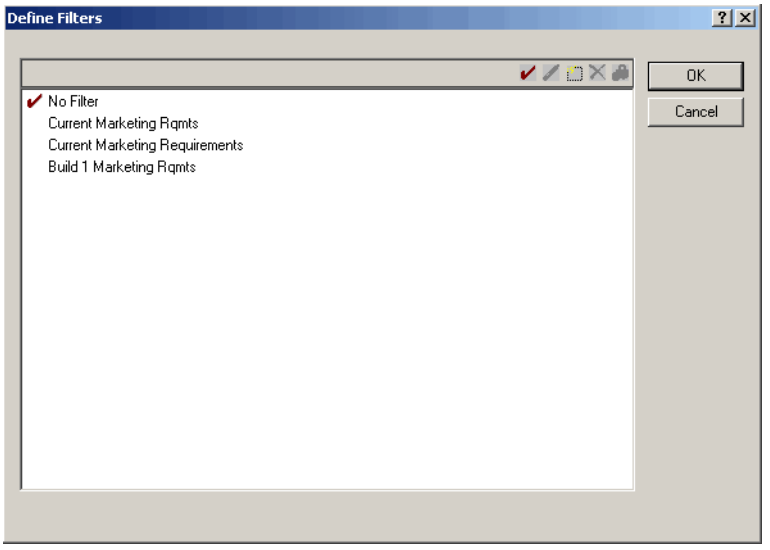

Figure 4-12. Define Filters

3. Select the filter you want to edit.
4. Click the **Edit Filter** button . The **Script Name and Class Selection** dialog opens.
5. Select **Next** to advance to the **Select Attributes** dialog.
6. Select the attributes that you want to retrieve.
7. Select **Next** to advance to the **Attribute Display Properties** dialog.
   - You may choose to display or not display any of the selected attributes by clicking on the attribute name in the list and choosing the corresponding option.
   - You may change the column heading for any of the attributes by clicking on the attribute name in the list and typing the column heading in the **Title** field.
8. Select **Next** to advance to the **Filter, Sort Order, Relationship** dialog.

9 To add constraints, select **Edit** next to the **Filter** field.

10 When finished entering constraints, click **OK** to return to the **Filter, Sort Order, Relationship** dialog.

11 To add a sort order, click **Edit** next to the **Sort Order** field.

12 When finished entering sort parameters, click **OK** to return to the **Filter, Sort Order, Relationship** dialog.

13 Click **Finish** to save the script.

NOTE If you do not have "Create" permission for scripts, you cannot save a script.

To delete a class filter:

1 Select the class from which you want to delete a filter.

2 Select **Filters** > **Define Filters** from the **File** menu, or click the **Define Filters** button .

The **Define Filters** dialog (Figure 4-12) opens.

3 Select the filter you want to delete.

4 Click the **Delete Filter** button , and click **Yes**. If the filter that is being deleted has been set as the default filter, the class will now have **No Filter** set as the default. Click **OK**.

To select a default class filter:

1 Select the class for which you want to select a default filter.

2 Select **Filters** > **Define Filters** from the **File** menu, or click the **Define Filters** button .

The **Define Filters** dialog opens.

3 Select the filter you want to make the default class filter.

4 Click the **Set as default filter** button , and then click **OK**.

To set filter security for a group:

1 Select the class that has the filter for which you want to set security.

2 Select **Filters** > **Define Filters** from the **File** menu, click the **Define Filters** button , or right-click the class and select **Define Filters**.

The **Define Filters** dialog (Figure 4-12) opens.

3 Select the filter for which you want to set security.

4 Click the **Security** button .

The **Security** dialog opens.

5 Expand the **Groups** folder by clicking **+**.

6 Select the group for which you want to set security.

7 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.

- Inherited access is indicated by a gray box ☐.
- Explicit access denied is indicated by an unchecked box ☐.

To set filter security for a user:

1. Select the class that has the filter for which you want to set security.
2. Select **Filters** > **Define filters** from the **File** menu, click the **Define Filters** button , or right-click the class and select **Define filters**.

   The **Define Filters** dialog (Figure 4-12) opens.
3. Select the filter for which you want to set security.
4. Click the **Security** button .

   The **Security** dialog opens.

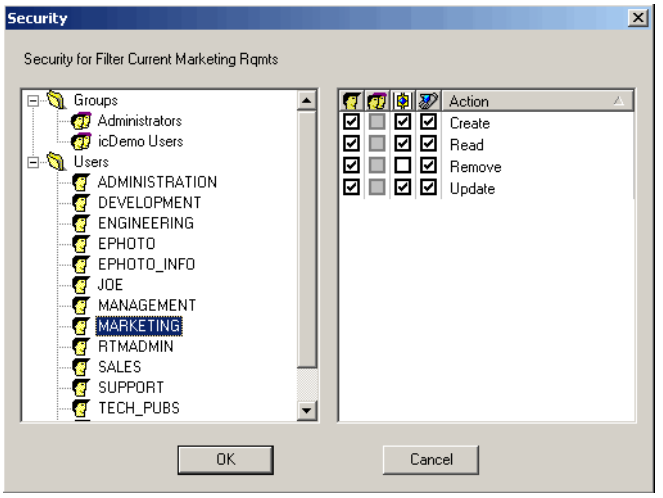

Figure 4-13. Security

5. Expand the **Users** folder by clicking **+**.
6. Select the user for which you want to set security.
7. Change the access rights for an action by clicking the check box next to it. The following describes the identification for each access right.
   - Explicit access granted is indicated by a checked box ☑.
   - Inherited access is indicated by a gray box ☐.
   - Explicit access denied is indicated by an unchecked box ☐.

You can perform the following actions in the **Security** dialog:

- **Create**—Create a new object for each row in the file.
- **Read**—Read matching objects in the project database.
- **Remove**—Remove matching objects in the project database.
- **Update**—Update matching objects in the project database.
- **Delete**—Delete matching objects in the project database.

Objects

Once a class has been defined in the Class Definition tool, specific instances may be created for that class. These class instances are known as objects.

To create a new object:

1. Select **New** > **Object** from the **File** menu, or click the **New Object** button .
2. Select the type of object you would like to create (for example, class form, collection, relationship).
3. Click **OK**.

To open an object:

1. Select the object you want to open.
2. Select **Open** from the **File** menu, or click the **Open** button .

To open an object graphically:

1. Select the object you want to open.
2. Select **Open Graphically** from the **File** menu, or click the **Open Graphically** button .

To open an object in a source document:

1. Select the object you want to open.
2. Select **Open Source** from the **File** menu, or click the **Open Source** button .
3. Select the source document you want to open.

CSV Import

The CSV (comma separated value) Import utility is designed to allow you to import data from a comma separated value file into the Dimensions RM project database. The data can be imported into either a class or relationship for the selected project. For example, you may have an Excel spreadsheet that you want to export to Dimensions RM. You can save the spreadsheet in CSV format and bring it into Dimensions RM through the CSV Import wizard.

Importing into a Class

When importing into a class, you can perform the following operations:

- Create a new object for each row in the file
- Update matching objects in the project database
- Update matching objects in the project database—create a new object if no match is found
- Replace matching objects in the project database
- Replace matching objects in the project database—create a new object if no match is found
- Delete matching objects in the project database
- Undelete matching objects in the project database

- Remove matching objects in the project database

Importing into a Relationship

When importing into a relationship, you can perform the following operations:

- Create a new link object for each row in the file
- Delete matching link objects in the project
- Undelete matching link objects in the project
- Remove matching link objects in the project database

To create new objects in the project database:

1 Select **Import CSV Data** from the **File** menu, click the **Import CSV Data** button , or right-click the class name and select **Import CSV Data**. The CSV Wizard starts.

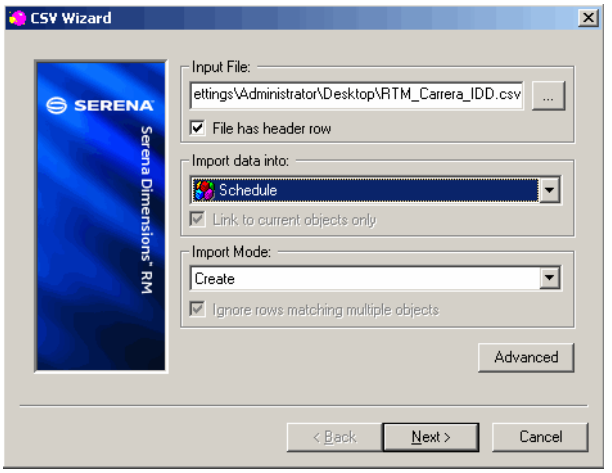

Figure 4-14. CSV Wizard

2 Type the path of the input file or use the **Browse** button to select an input file.

The input file is usually a Comma Separated File (.csv), which is the most common format you will import. Most spreadsheet applications have the capability to output the data in this format. CSV files use commas to separate data in cells; for example, red, green and blue in the cell is formatted as **red,green,blue** in a text string.

You also can use other formats for importing files by clicking the **Advanced** button. For example, you can save the file as a "tab delimited" file, which uses tabs to separate data instead of commas. These files have a .txt extension. The CSV import wizard allows you to specify which delimiter is used.

3 Select the class into which the data is to be imported.

4 Select the operation to be performed on the data in the import file from the drop-down menu. The following options are available:

- **Create**—Create a new object for each row in the file.
- **Update Matching Records Only**—Update matching objects in the project database.
- **Update/Create When no Match Found**—Update matching objects in the project database, or create a new object if no match found.

- **Replace Matching Records Only**—Replace matching objects in the project database.
- **Replace/Create When no Match Found**—Replace matching objects in the project database or create a new object if no match found.
- **Delete**—Delete matching objects in the project database.
- **Undelete**—Undelete matching objects in the project database.
- **Remove**—Remove matching objects in the project database.

5 Click **Next**. The attribute constraint dialog opens.

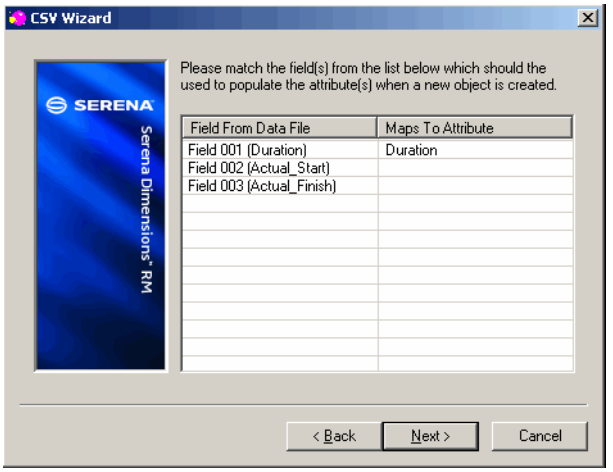

Figure 4-15. Attribute Constraint

The attribute constraint dialog maps the fields from the CSV file to the attributes of the object. The left column contains an entry for each field read from the input file. The right column displays the attribute that should be constrained with the value at that position in each row of the file. To specify which attribute should be constrained by a given field in the file, click the **Maps To Attribute** cell that is opposite the field and select the attribute from the drop-down menu. Note that an attribute can only be mapped to a single field in the file. Any fields that are not be used as search constraints should be left blank.

6 Click **Next**. The default value assignment dialog opens.

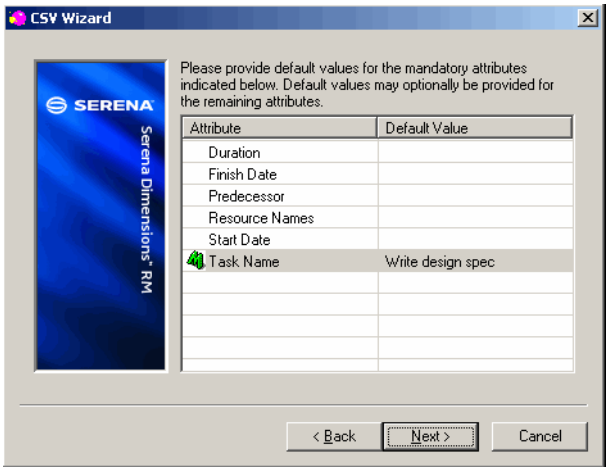

Figure 4-16. Default Value Assignment

The default value assignment dialog is used to assign default values to each of the attributes for the object. If an attribute is defined as mandatory, indicated by the symbol next to the attribute name, a default value must be provided so that the object can still be created, even if a value is not present in the file. You may optionally provide default values for all other attributes that will be used if the field in the file assigned to the object contains no value.

7 Click **Next**. The perform import dialog opens.

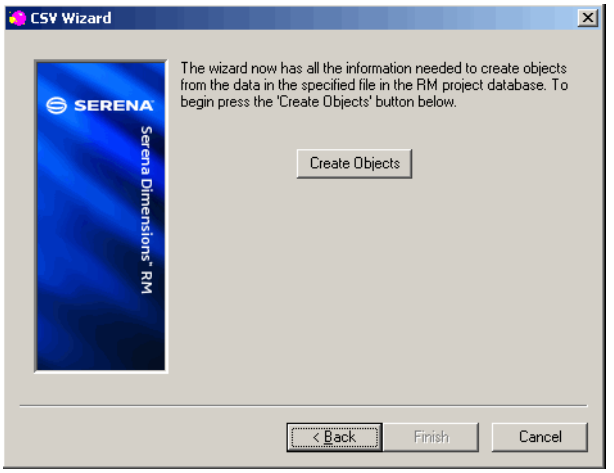

Figure 4-17. Perform Import

The wizard now has all the information it needs to read the data from the CSV file and modify the objects identified by each row in the file.

8 Click **Create Objects** to begin the import.

Once the import has completed, you can view the log information that displays the details of the objects that have been created. Click the **Finish** button to close the import wizard.

To delete, undelete, and remove objects using a CSV file:

1 Right-click the class in the RM Explorer tree from which the objects are to be deleted and select **Import CSV Data**.

2 Follow the instructions provided in the CSV Import Wizard.

To update or replace objects from a CSV file:

1 Right-click the class in the RM Explorer tree in which the objects are to be modified and select **Import CSV Data**.

2 Follow the instructions provided in the CSV Import wizard.

To use CSV Import advanced options:

1 Click the **Advanced** button on the first dialog of the CSV Import Wizard.

The **Advanced Options** dialog opens.

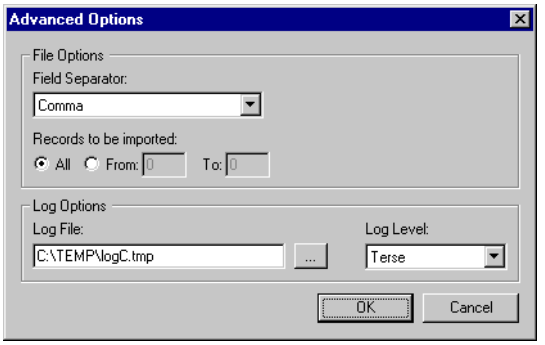

Figure 4-18. Advanced Options

2 Specify configuration options to set for the CSV Import wizard. The following options are available:

- **Field Separator**—Select the character to be used as the field separator in the input file from the list of options available on the drop-down menu.
- **Records to be Imported**—Allows either all the rows from the file to be imported, or for a selection of row to be selected by providing values for the From and To fields.
- **Log File**—Allows the name of the log file to be specified.
- **Log Level**—Allows the configuration of log output. **Terse** (the default value) provides only a minimal description of the objects changed, while **Verbose** displays all attribute values for each object modified.

NOTE When using **Verbose**, the log file can grow to be very large.

Batch Update Wizard

The Batch Update wizard is designed to allow attribute values to be changed for all objects that match a set of attribute constraints for any one class defined in the project schema. When running the Batch Update wizard the following operations are available:

- **Update Current Objects Only—**Updates all current objects that match the specified attribute constraints and updates the attribute values to the new attribute values provided.
- **Update All Objects—**Updates all objects that match the specified attribute constraints regardless of status and updates the attribute values to the new attribute values provided. You can update all objects only if this privilege has been given to you by the system administrator.
- **Replace Current Objects Only—**Replaces all current objects that match the specified attribute constraints and updates the attribute values to the new attribute values provided.
- **Delete Objects—**Deletes all current objects that match the specified attribute constraints.
- **Undelete Objects—**Undeletes all deleted objects that match the specified attribute constraints.
- **Remove Objects—**Removes all current objects that match the specified attribute constraints. **Remove Objects** destroys the matching objects permanently and cannot be undone. This is a good way to remove all objects captured from a specific document (if the document IO field exits).

To update or replace objects in the project database:

1 Select **Batch Update Data** from the **File** menu, click the **Batch Update Data** button , or right-click a class and select **Batch Update Data**.

The **Batch Update wizard** opens.

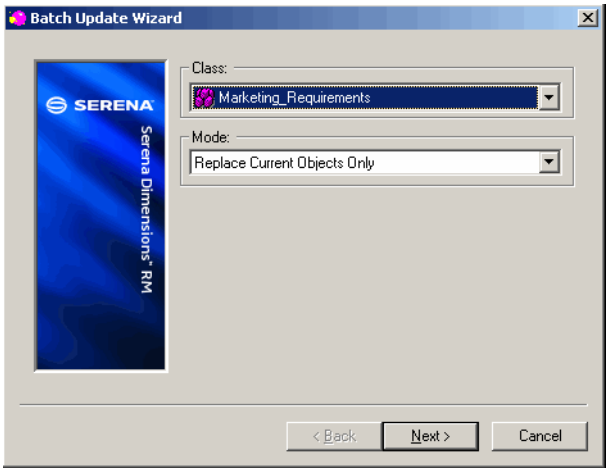

Figure 4-19. Batch Update Wizard

2 Select the class that contains the objects you want to modify from the **Class** field.

3 Select the operation to be performed on the objects from the **Mode** field.

The following operations are available:

- **Update Current Objects Only**—Updates all current objects that match the specified attribute constraints and updates the attribute values to the new attribute values provided.
- **Update All Objects**—Updates all objects that match the specified attribute constraints regardless of status and updates the attribute values to the new attribute values provided.
- **Replace Current Objects Only**—Replaces all current objects that match the specified attribute constraints and updates the attribute values to the new attribute values provided.
- **Delete Objects**—Deletes all current objects that match the specified attribute constraints.
- **Undelete Objects**—Undeletes all deleted objects that match the specified attribute constraints.
- **Remove Objects**—Removes all current objects that match the specified attribute constraints. This destroys the matching objects permanently and cannot be undone.

4 Click **Next** to advance to the attribute constraint dialog.

Figure 4-20. Attribute Constraint

Use the attribute constraint dialog to provide values for the attributes used as constraints when searching for objects. Only certain attribute types can be constrained; for example, text contained in the **Description** attribute cannot be constrained. The left column contains an entry for each attribute defined for the class. The right column allows you to define the constraint value for the attribute.

5 To add a constraint to an attribute, click the **Value** cell next to the attribute and enter the appropriate value. Leave this cell blank for any attributes that are not to be used as constraints when locating the objects.

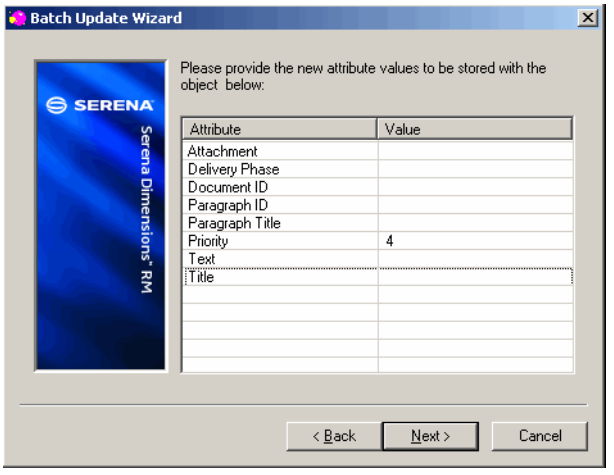

Figure 4-21. Attribute Value Allocation

Use the attribute value allocation dialog to specify values for each attribute to be changed. To set the attribute value, click the cell next to an attribute and select a value from the drop-down menu. Attributes that are left blank are not changed when the object is updated.

6 Click **Next** to advance to the perform update dialog.

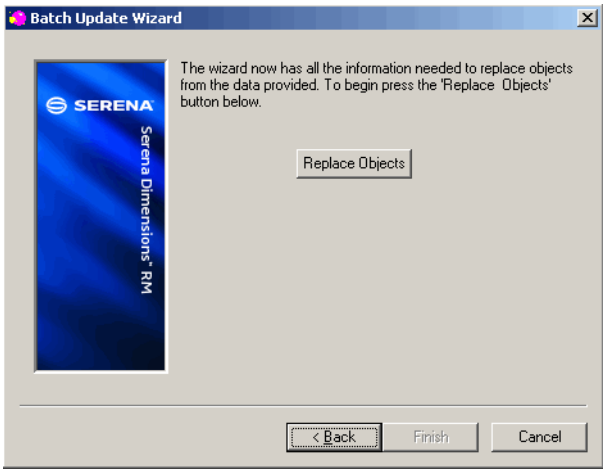

Figure 4-22. Perform Update

7 The wizard now has all the information it needs to update the objects. Click **Replace Objects** to begin the update. Once the update has completed, you can view the log that displays information about the objects that have been modified.

NOTE The button on the perform update dialog differs depending on the type of operation you are performing; for example, it displays **Update**, **Remove**, or **Delete** when you perform these functions.

8 Click **Finish** to close the **Batch Update wizard**.

Importing CSV Data

To import CSV data:

1 Select a class or relationship.

2 Select **Import CSV Data** from the **File** menu or click the **Import CSV Data** button .

Batch Update Data

This procedure runs the Batch Update wizard, which allows you to update an attribute in multiple objects at one time.

To batch update data:

1 Select a class.

2 Select **Batch Update Data** from the **File** menu, or click the **Batch Update Data** button .

Collections

Collections are a mechanism for grouping objects of any class. Once created, a collection can be associated with an object by linking the collection and the object. Each object can be linked to many different collections, and each collection to many different objects, either manually or automatically. Collections may also contain other collections.

Collections that contain objects are known as *child collections*. Collections that contain other collections are known as *parent collections*.

NOTE Baselined collections have limited functionality in RM Explorer. For example, you cannot modify link transfer rules or toggle collection linkability on a baselined collection.

Creating a New Collection

To create a new collection:

1. Select the collection folder in which you want to add the new collection.
2. Select **New** > **Collection** from the **File** menu, click the **New Collection** button , or right-click the **Collection** node and select **New**.

   The **New Collection** dialog opens.

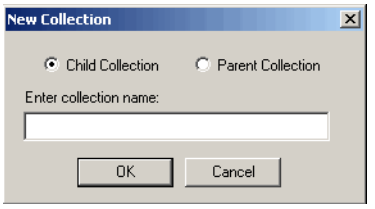

Figure 4-23. New Collection

3. Select **Child Collection** or **Parent Collection**.
4. Enter the name of the collection and click **OK**.
5. Press F5 to show the new keyword in the tree.

Creating Collection Aliases

An alias is an alternative label for an object, such as a file or data collection.

To create a collection alias:

1. Select a collection.
2. Select **Create Aliases** from the **File** menu, click the **Create Alias** button , or right-click the collection and select **Create Alias**.

The **Define Collection Aliases** dialog opens.

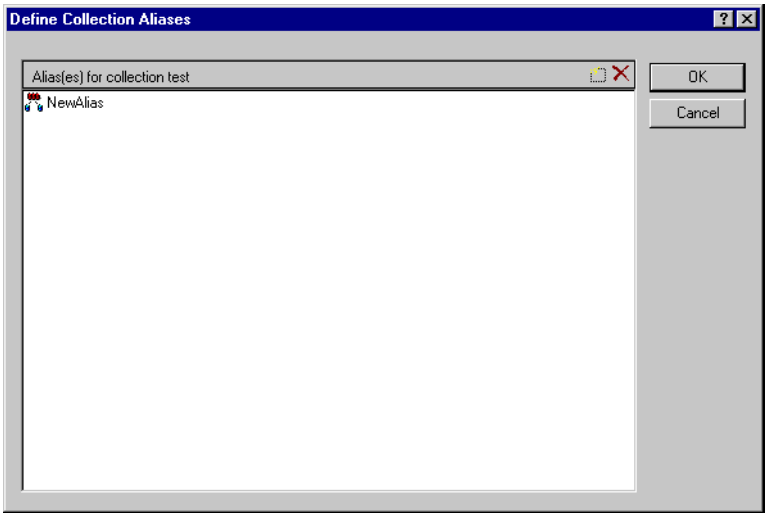

Figure 4-24. Define Collection Aliases

3 Add new collection aliases by clicking the **New Collection** button. The collection aliases are added with the name *NewAlias*.

4 Change the name of the alias by double-clicking the name and typing a new one.

5 Remove unwanted aliases by selecting the alias from the list and clicking the **Delete** button.

6 When you finish creating, deleting, or editing the aliases, click **OK**.

Modify Link Transfer Rules

To modify link transfer rules:

1 Select a collection.

2 Select **Modify Link Rules** from the **File** menu, click the **Modify Link Rules** button, or right-click the collection.

The **Modify Collection Link Rules** dialog opens.

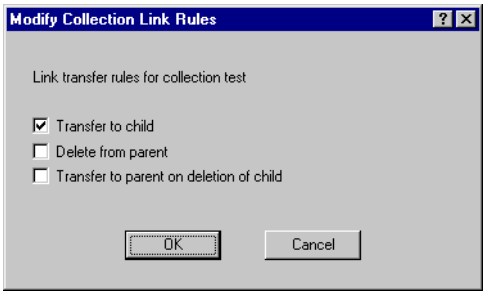

Figure 4-25. Modify Collection Link Rules

3 Set the rules for transferring links by checking the following options:

- **Transfer to child**—Copy the link to the new object if the current object that is linked to this collection is replaced.
- **Delete from parent**—Remove the link from the current object that is linked to this collection if that object is replaced.

- **Transfer to parent on deletion of child**—Move the link to the parent of the object that is linked to this collection if that object is removed.

4 Click **OK**.

Opening a Collection

To open a collection:

- Double-click the collection, select the collection and click **Open** on the **File** menu, or select the collection and click the **Open** button .

Opening a Collection Graphically

To open a collection graphically:

- Right-click the collection, select the collection and select **Open Graphically** from the **File** menu, or select the collection and click the **Open Graphically** button .

Renaming a Collection

To rename a collection:

1 Select a script.

2 Select **Rename** from the **File** menu, click the **Rename** button , or double-click the collection name.

3 Enter the new collection name.

Toggle Collection Linkability

To toggle collection linkability:

1 Select a collection.

2 Select **Toggle Linkability** from the **File** menu, or click the **Toggle Linkability** button .

If linkability = **Y**, the collection can be linked to objects. If linkability = **N**, no new links can be created.

Collection Security

You can perform the following actions in the security dialogs for groups and users:

- **Create**—Create a new object for each row in the file.
- **Link**—Link objects in the project database.
- **Remove**—Remove matching objects in the project database.
- **Rename**—Rename objects in the project database.
- **Unlock**—Unlock matching objects in the project database.
- **Update**—Update matching objects in the project database.

To set collection security for a group:

1 Select the collection for which you want to set security.

2 Select **Security** from the **File** menu, click the **Security** button , or right-click the collection and select **Security**.

The **Security** dialog opens.

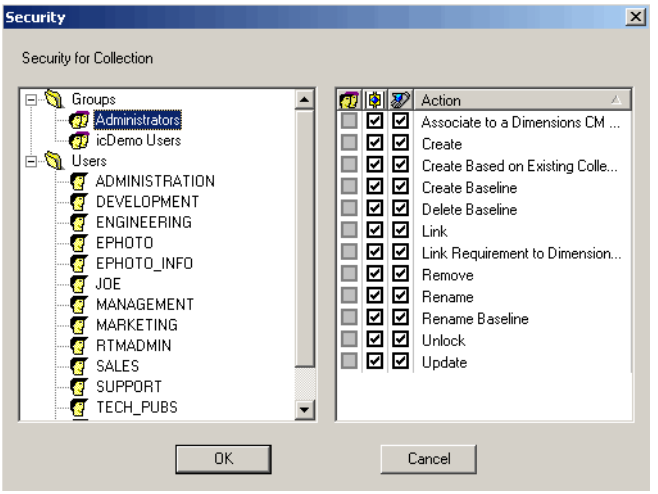

Figure 4-26. Security Dialog for Group

3 Expand the **Groups** folder by clicking **+**.

4 Select the group for which you want to set security.

5 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ☐.

To set collection security for a user:

1 Select the collection for which you want to set security.

2 Select **Security** from the **File** menu, click the **Security** button , or right-click the collection and select **Security**.

The **Security** dialog opens.

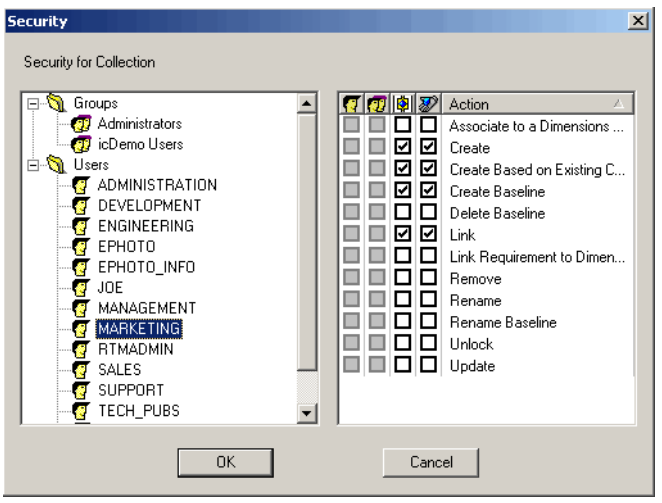

Figure 4-27. Security Dialog for User

3 Expand the **Users** folder by clicking **+**.

4 Select the user for which you want to set security.

5 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ▢.
- Explicit access denied is indicated by an unchecked box ☐.

Documents

Dimensions RM provides an extension to Microsoft® Word. This extension allows you to capture requirements from Word documents. The documents that appear in the RM Explorer window have been registered with Dimensions RM.

Creating a New Word Document

To create a new Word document:

1 Select the document folder in which you want to add the new Word document.

2 Select **New** > **Word Document** from the **File** menu, right-click the **Documents** folder, or click the **New Word Document** button .

A document icon opens in the Documents directory.

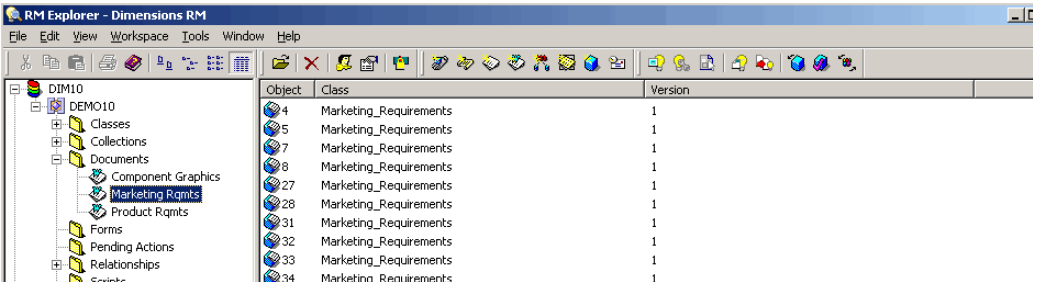

Figure 4-28. Creating a New Word Document

Deleting a Document

To delete a document:

1 Select the document you want to delete.

2 Select **Delete** from the **File** menu, right-click the document and select **Delete**, or click the **Delete** button .

3 When prompted, click **Yes** to confirm the deletion.

Opening a Document

1 Select the document you want to open.

2 Select **Open** from the **File** menu, or click the **Open** button . This starts RM Word.

Document Objects

Dimensions RM provides an extension to Microsoft Word.

To open a document object:

1 Select the document object you want to open.

2 Select **Open** from the **File** menu, or click the **Open** button .

To open a document object in the source document:

1 Select the document object you want to open.

2 Select **Open Source** from the **File** menu, or click the **Open Source** button .

3 Select the source document you want to open.

Document Security

To set document security for a group:

1 Select a document.

2 Select **Security** from the **File** menu, click the **Security** button , or right-click the collection and select **Security**.

3 The **Security** dialog opens.

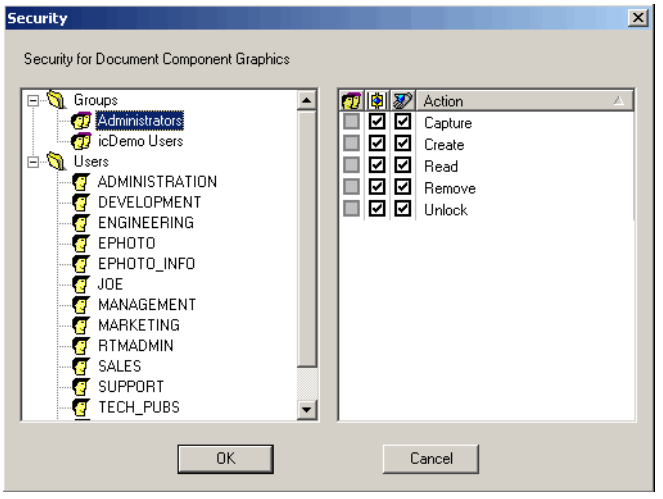

Figure 4-29. Group Security for Documents

4 Expand the **Groups** folder by clicking **+**.

5 Select the group for which you want to set security.

6 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ☐.

To set document security for a user:

1 Select the document for which you want to set security.

2 Select **Security** from the **File** menu, click the **Security** button , or right-click the collection and select **Security**.

The **Security** dialog opens.

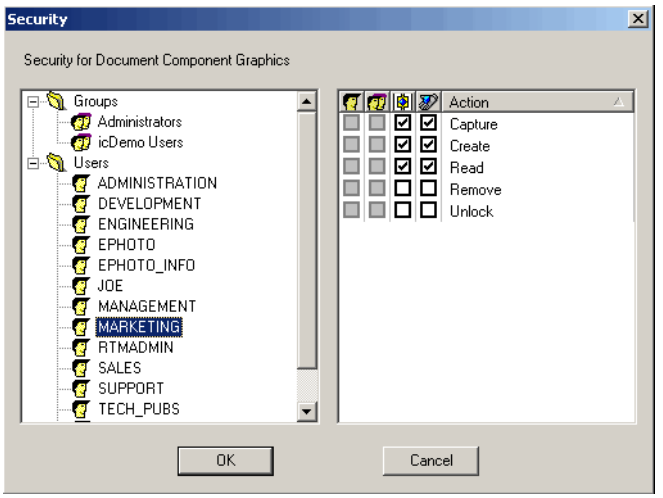

Figure 4-30. User Security for Documents

3 Expand the **Users** folder by clicking **+**.

4 Select the user for which you want to set security.

5 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ▢.
- Explicit access denied is indicated by an unchecked box ☐.

Forms

Forms are used to display object information for classes and relationships in any user-defined format. Dimensions RM creates a form for each class or relationship. Users can create new forms by customizing the Dimensions RM-generated form. Users can designate any form to be used as the default.

Class Forms

Class forms are used to display object information for classes in any user-defined format. If a user-defined form does not exist for a class, a default form is used that contains all visible attributes.

To create a new class form:

1 Select the form folder in which you want to add the new class form.

2 Select **New** > **Form** from the **File** menu, or click the **New Form** button . This starts RM Concept.

To delete a class form:

1 Select the class form you want to delete.

2 Select **Delete** from the **File** menu, or click the **Delete** button .

3 When prompted, click **Yes** to confirm the deletion.

To edit a class form:

1 Select the class form you want to edit.

2 Select **Edit** from the **File** menu, or click the **Edit** button .

To open a class form:

1 Select the class form you want to open.

2 Select **Open** from the **File** menu, or click the **Open** button .

To rename a class form:

1 Select the class form you want to rename.

2 Select **Rename** from the **File** menu, click the **Rename** button , or double-click the class form name.

3 Enter the new class form name.

Relationship Forms

Relationship forms are used to display object information for a relationship in any user-defined format. Dimensions RM creates a form for relationships using the Generated Forms function. A relationship form consists of two class forms, one for the primary class and one for the secondary class.

To create a new relationship form:

1 Select the form folder in which you want to add the new relationship form.

2 Select **New** > **Form** from the **File** menu, right-click the **Forms** folder and select **New**, or click the **New Form** button .

3 Select **Relationship Form**.

4 Make your selection and click **OK**.

To delete a relationship form:

1 Select the relationship form you want to delete.

2 Select **Delete** from the **File** menu, or click the **Delete** button .

3 When prompted, click **Yes** to confirm the deletion.

To open a relationship form:

1 Select the relationship form you want to open.

2 Select **Open** from the **File** menu, or click the **Open** button .

To rename a relationship form:

1 Select the relationship form you want to rename.

2 Select **Rename** from the **File** menu, click the **Rename** button, or double-click the relationship form name.

3 Enter the new relationship form name.

Form Security

To set form security for a group:

1 Select a form.

2 Select **Security** from the **File** menu, click the **Security** button, or right-click the collection and select **Security**.

The Security dialog opens.

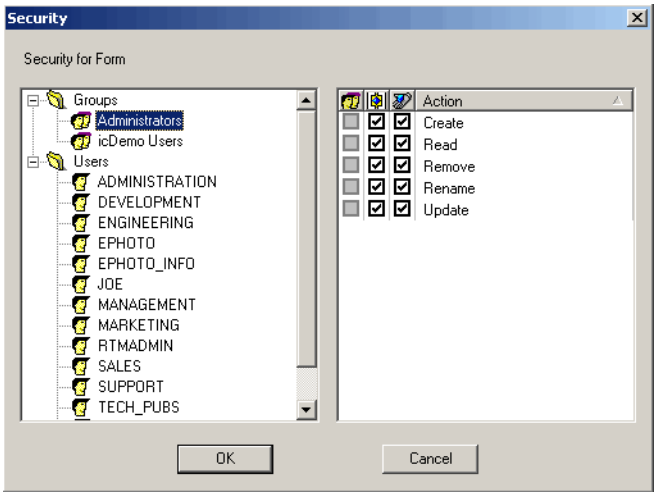

Figure 4-31. Group Security for Forms

3 Expand the **Groups** folder by clicking **+**.

4 Select the group for which you want to set security.

5 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ☐.

To set form security for a user:

1 Select the form for which you want to set security.

2 Select **Security** from the **File** menu, click the **Security** button, or right-click the collection and select **Security**.

The **Security** dialog opens.

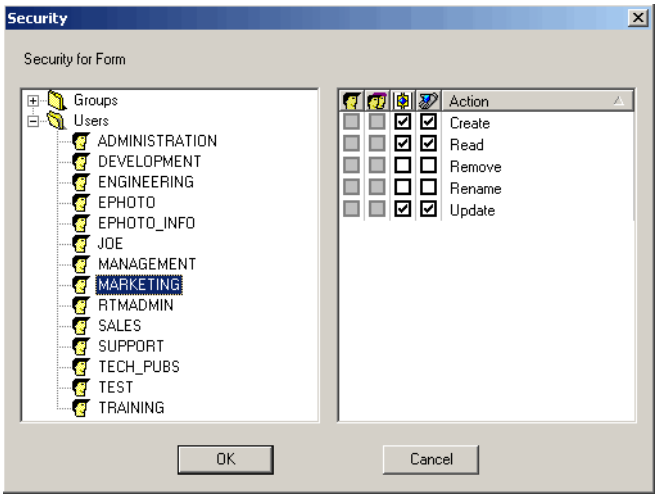

Figure 4-32. User Security for Forms

3 Expand the **Users** folder by clicking **+**.

4 Select the user for which you want to set security.

5 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ▢.
- Explicit access denied is indicated by an unchecked box ☐.

Relationships

A relationship represents a logical association between two classes. The two classes are referred to as the *primary class* (the one the relationship flows from), and the *secondary class* (the one the relationship flows to).

Opening a Relationship

To open a relationship:

1 Select the relationship you want to open.

2 Select **Open** from the **File** menu, right-click the relationship and select **Open**, or click the **Open** button .

Opening a Relationship with a Relationship Form

To open a relationship with a relationship form:

1 Select the relationship you want to open.

2 Select **Open with Relationship Form** from the **File** menu, or click the **Open with Relationship Form** button .

3 Select a relationship form from the list, or select **Default** to open the relationship using the default relationship form.

Setting a Default Form for a Relationship

To set a default form for a relationship:

1. Select the relationship for which you want to set a default form.
2. Select **Properties** from the **File** menu, or click the **Properties** button .
3. Click the **Default Form** tab.
4. All of the forms that have been defined for this relationship appear in the list. Select the form to be used as the default form and click **OK.**

Viewing the Primary Compliance Report

To view the primary compliance report:

The Primary Compliance Report generates a list of objects that are linked as primary in the relationship.

1. Select the relationship for which you want to view the primary compliance report.
2. Select **View Primary Compliance Report** from the **File** menu, or right-click the relationship and select **View Primary Compliance Report**.

Viewing the Primary Non-Compliance Report

To view the primary non-compliance report:

The Non-Compliance Report generates a list of objects that are *not* linked as primaries.

1. Select the relationship for which you want to view the primary non-compliance report.
2. Select **View Primary Non-Compliance Report** from the **File** menu, or right-click the relationship and select **View Primary Non-Compliance Report**.

Viewing the Secondary Compliance Report

To view the secondary compliance report:

1. Select the relationship for which you want to view the secondary compliance report.
2. Select **View Secondary Compliance Report** from the **File** menu, or right-click the relationship and select **View Secondary Compliance Report**.

Viewing the Secondary Non-Compliance Report

To view the secondary non-compliance report:

1. Select the relationship for which you want to view the secondary non-compliance report.
2. Select **View Secondary Non-Compliance Report** from the **File** menu, or right-click and select **View Secondary Non-Compliance Report**.

Auto Link

The Auto Link wizard is used to either create or break links between objects of the primary and secondary class connected to the selected relationship. Constraints are

provided for the primary and secondary classes to select the objects that are to be linked. Attribute values can also be provided for the links that are created.

To create links:

1 Select the relationship for which you want to automatically create links.

2 Select **Auto Link** from the **Tools** menu or click the **Auto Link** button . The Auto Link wizard opens.

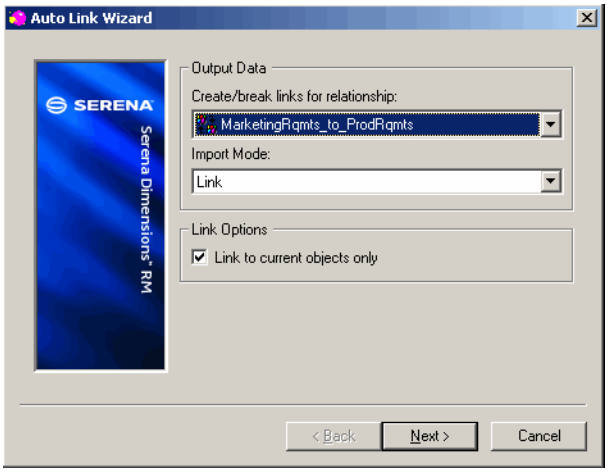

Figure 4-33. Input Information

3 Select a relationship from the **Output Data** field. This contains the Create/Break links for the relationship drop-down list.

4 Select an import method. This creates or breaks links in a list of relationships that you could reference. The following methods are available:

- **Create**
- **Delete**
- **Undelete**
- **Remove**

5 Click **Link to current object only** to creating links only among current objects.

6 Click **Next** to advance to the attribute constraint dialog. Use this dialog to provide values for the attributes of the primary and secondary classes used as constraints.

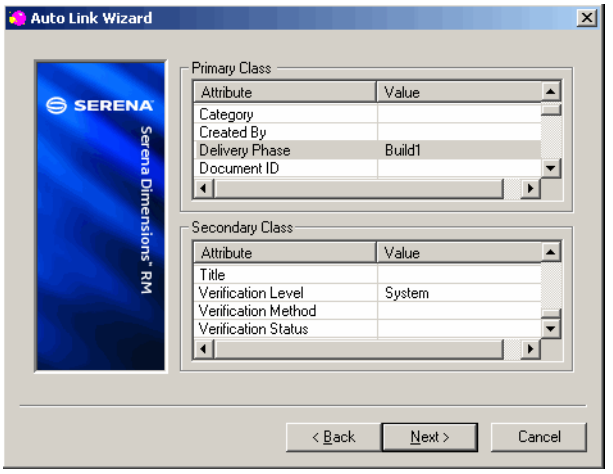

Figure 4-34. Attribute Constraint

7 To set an attribute constraint, click the cell next to an attribute and enter a constraint value or select one from the drop-down menu. Attributes that are not used as search constraints should be left blank.

8 Click **Next** to advance to the perform link dialog.

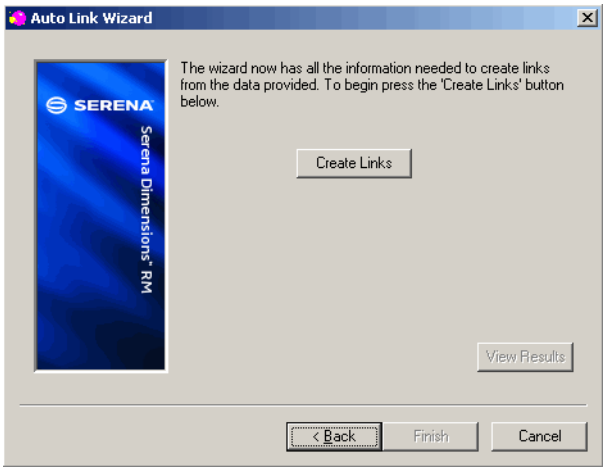

Figure 4-35. Perform Link

The wizard has all the information needed to create a new link among the objects.

9 Click **Create Links** to begin the link creation process. When the import is completed you will have the option to view the log containing details of the links.

10 Click **Finish** to close the Auto Link wizard.

Creating Link Objects from a CSV File

To create new links in the project database:

1 Select a relationship.

2 Select **Import CSV Data** from the **File** menu, click the **Import CSV Data** button , or right-click the relationship and select **Import CSV Data**. The CSV Import wizard opens.

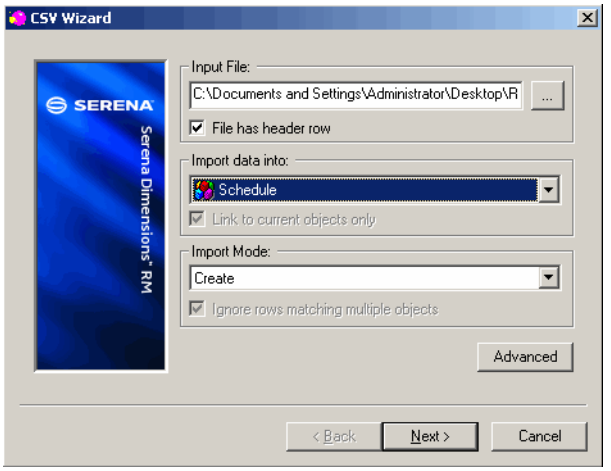

Figure 4-36. CSV Import Wizard

3 Select an input file to be imported into the RM project. This file is a Comma Separated File (.csv). If the file has a header row (that is, the first row in the file contains the titles for the columns), make sure that **File has header row** check box is selected.

4 Select the class into which the data is to be imported. You can constrain the link creation between objects that have a status of Current by selecting the **Link to current objects only** check box.

5 Select the operation to be performed on the data from the **Import Mode** drop-down menu. You can select the following options:

- **Create**—Create a new link object for each row in the file.
- **Delete**—Delete matching link objects in the project database.
- **Undelete**—Undelete matching link objects in the project database.
- **Remove**—Remove matching link objects in the project database.

NOTE The **Ignore rows matching multiple objects** option is not used for link operations and will always be disabled.

6 Click **Next** to advance to the attribute constraint dialog.

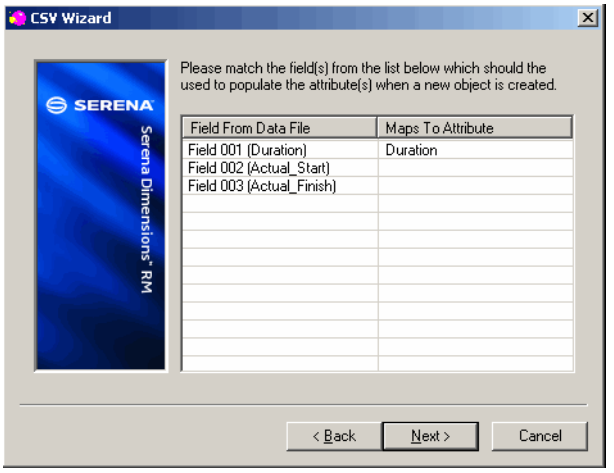

Figure 4-37. Attribute Constraint

Use the attribute constraint dialog to map the fields from the CSV file to the attributes of the primary and secondary class. The values contained in the fields select the objects of the primary and secondary classes to be linked.

7 To specify which attribute should be constrained by a given field in the file, click the **Maps To Attribute** cell next to a field and select an attribute from the drop-down menu.

NOTE An attribute can only be mapped to a single field in the file. Any fields not used as search constraints should be left blank.

8 Click **Next** to advance to the attribute allocation dialog.

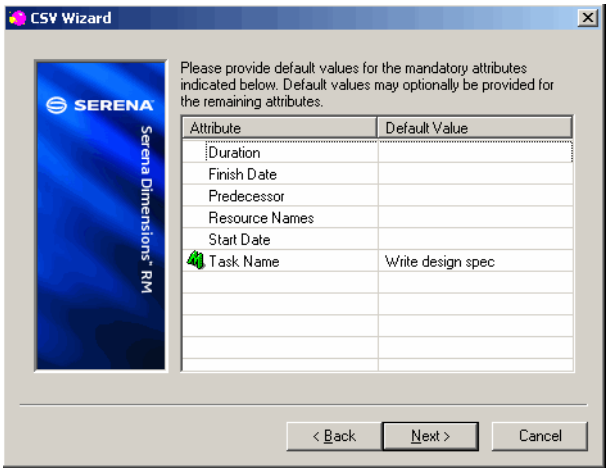

Figure 4-38. Attribute Allocation

Use the attribute value allocation dialog to specify the mapping among the columns in the CSV file and the attributes for the object. Note that an attribute can only be mapped to a single field in the file. If the file contains a header row containing the description of the field, the wizard will try to map the value from the file to an attribute display name and will automatically select that attribute for the mapping when the dialog is displayed.

Mandatory attributes are indicated by the mandatory icon .

9 Click the **Maps To Attribute** cell next to an attribute to specify which attributes and default values are populated by a field in the file.

10 When you are finished selecting default values, click **Next** to advance to the **Perform Import** dialog.

The wizard now has all the information it needs to read the data from the CSV file and create a new link object for each row in the file.

11 Click **Create Objects** to begin the import. After the import has completed, you can view the log information that displays the details of the links created.

12 Click **Finish** to close the wizard.

Relationship Objects

Relationship objects belong to classes that have a relationship between them and may be linked. To open a relationship object, double-click the relationship, select **Open** from the **File** menu, or click the **Open** button .

Scripts

Scripts are used to select a subset of data from Dimensions RM. The scripts are generated through a graphical user interface known as script generator wizard and are based on SQL.

NOTE Traceability reports are presented as scripts in RM Explorer. For more information about traceability reports, see "Working in Traceability View" on page 92.

Creating a New Script

NOTE You cannot save a script unless you have the "Create" permission for scripts.

To create a new script:

1. Select the script folder in which you want to add the new script.
2. Select **New** > **Script** from the **File** menu, right-click the **Scripts** folder and select **New**, or click the **New Script** button . The **Script Name and Class Selection** dialog of the script generator wizard opens.

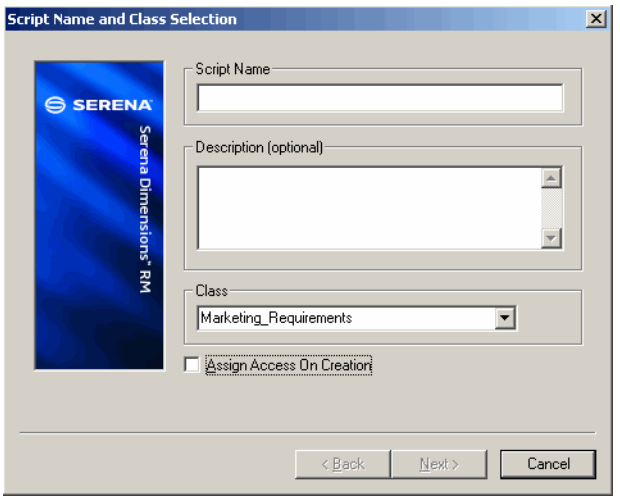

Figure 4-39. Script Name and Class Selection

3. Enter a name for the script.
4. Enter a description for the script, if desired.
5. Select a class for the script.

6 Click **Next** to advance to the **Select Attributes** dialog.

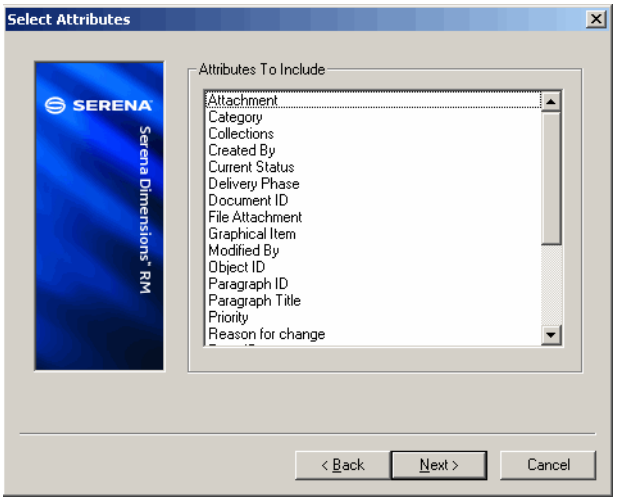

Figure 4-40. Select Attributes

7 Select the attributes that you want to retrieve.

8 Click **Next** to advance to the **Attribute Display Properties** dialog.

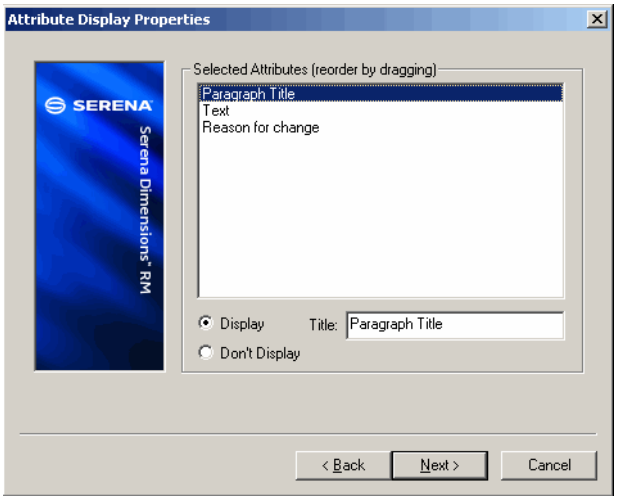

Figure 4-41. Attribute Display Properties

You can do the following in this dialog:

- Display or hide the selected attributes by clicking the attribute name in the list and choosing the corresponding option.
- Change the column heading for any of the attributes by clicking the attribute name in the list and typing the column heading in the **Title** field.
- Change the display (column) order by dragging the attribute names in the list. (The top of the list is the far left column.)

9 Click **Next** to advance to the **Filter, Sort Order, Relationship** dialog.

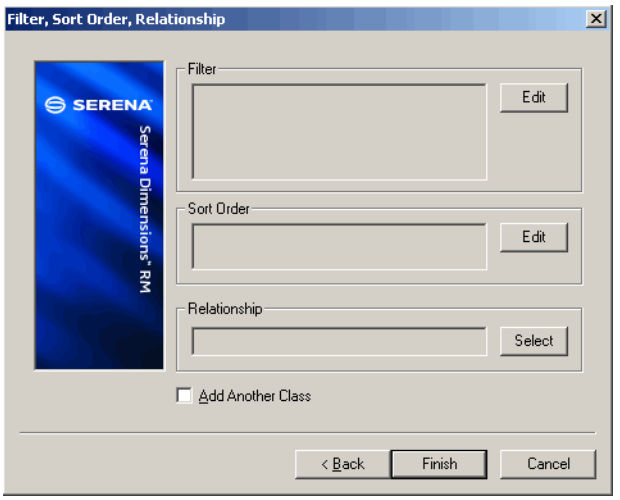

Figure 4-42. Filter, Sort Order, Relationship

10 To add constraints, click **Edit** under **Filter**.

The **Edit Filter** dialog opens.

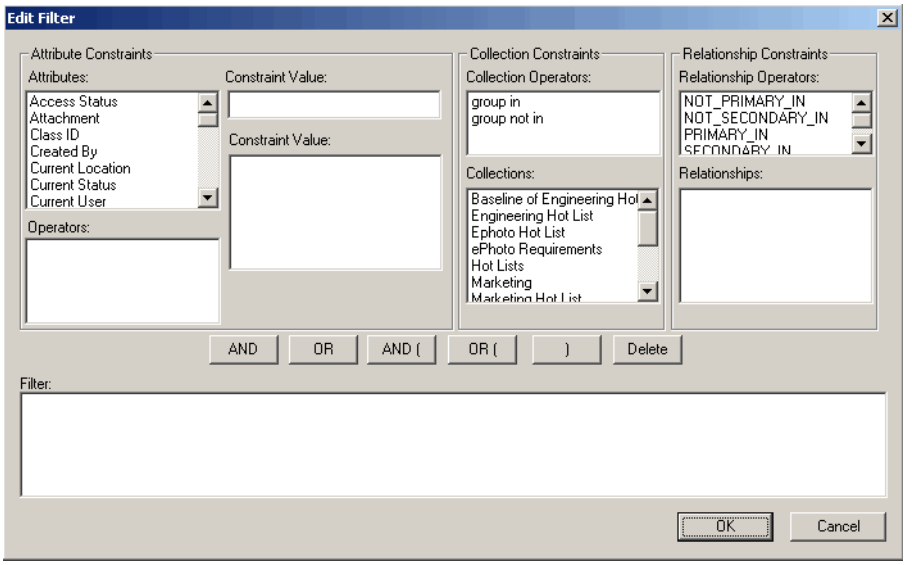

Figure 4-43. Edit Filter

11 When you finish entering constraints click **OK** to return to the **Filter, Sort Order, Relationship** dialog.

12 To add a sort order, click **Edit** under **Sort Order**.

13 The **Edit Sort Order** dialog opens.

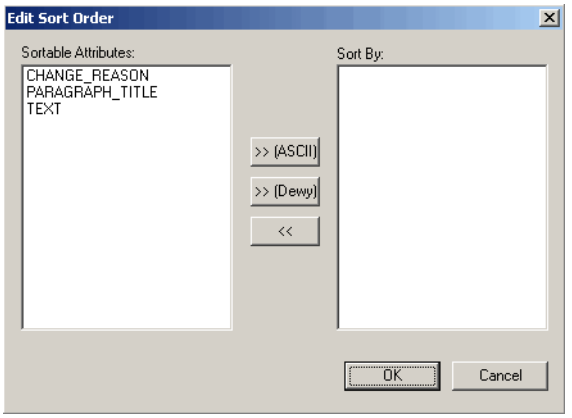

Figure 4-44. Edit Sort Order

14 When you finish entering sort parameters, click **OK** to return to the **Filter, Sort Order, Relationship** dialog.

15 To add an XREF statement, which shows the linkage between objects, select **Relationship**. Refer to "Script Syntax" on page 404 for details on how to use the XREF statement.

16 Select a relationship on the **Select Relationship** dialog.

17 Select **OK** to return to **the Filter, Sort Order, Relationship** dialog.

18 Repeat steps 8-16 for the secondary class in the relationship.

19 To add additional class selections, select the **Add Another Class** check box.

20 Select **Next** and follow steps 6-16.

21 Select **Finish** to save the script.

Deleting a Script

To delete a script:

1 Select the script you want to delete.

2 Select **Delete** from the **File** menu or click the **Delete** button .

3 When prompted, click **Yes** to confirm the deletion.

Editing a Script

To edit a script:

1 Select the script you want to edit.

2 Select **Edit** from the **File** menu or click the **Edit** button . The name and description of the script is populated and the class name selected.

3 Click **Next** to advance to the **Select Attributes** dialog.

4 Select the attributes that you want to retrieve.

5 Click **Next** to advance to the **Attribute Display Properties** dialog.

6 Specify whether selected attributes should be displayed by clicking the attribute name in the list and choosing the corresponding option.

7 Change the column heading for any of the attributes by clicking on the attribute name in the list and typing the column heading in the **Title** field.

8 Click **Next** to advance to the **Filter, Sort Order, Relationship** dialog.

9 To add constraints, select **Constraint**.

10 When finished entering constraints, select **OK** to return to the **Filter, Sort Order, Relationship** dialog.

11 To add a sort order, select **Sort Order**.

12 When finished entering sort parameters, select **OK** to return to the **Filter, Sort Order, Relationship** dialog.

13 To add an XREF statement, click **Select** under **Relationship**.

14 Select a relationship on the **Relationship Selection** dialog.

15 Click **OK** to return to the **Filter, Sort Order, Relationship** dialog.

16 Repeat steps 8-16 for the secondary class in the relationship.

17 To add additional class selections, select the **Add Another Class** check box.

18 Click **Next** and follow steps 6-16.

19 Click **Finish** to save the script.

CAUTION! If you edit and save a script that is a traceability report, the traceability report becomes a regular script.

Opening a Script

To open a script:

1 Select the script you want to open.

2 Select **Open** from the **File** menu or click the **Open** button .

Renaming a Script

To rename a script:

1 Select the script you want to rename.

2 Select **Rename** from the **File** menu, click the **Rename** button , or double-click the script name.

3 Enter the new script name.

Script Security

To set script security for a group:

1 Select the script for which you want to set security.

2 Select **Security** from the **File** menu or collection context menu, or click the **Security** button .

The **Security** dialog opens.

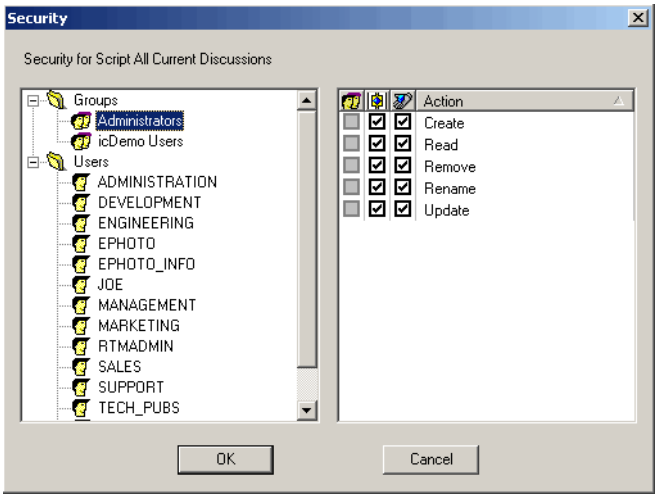

Figure 4-45. Group Security for Scripts

3 Expand the **Groups** folder by clicking **+**.

4 Select the group for which you want to set security.

5 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ☐.

To set script security for a user:

1 Select the script for which you want to set security.

2 Select **Security** from the **File** menu, click the **Security** button , or right-click the script and select **Security**.

The **Security** dialog opens.

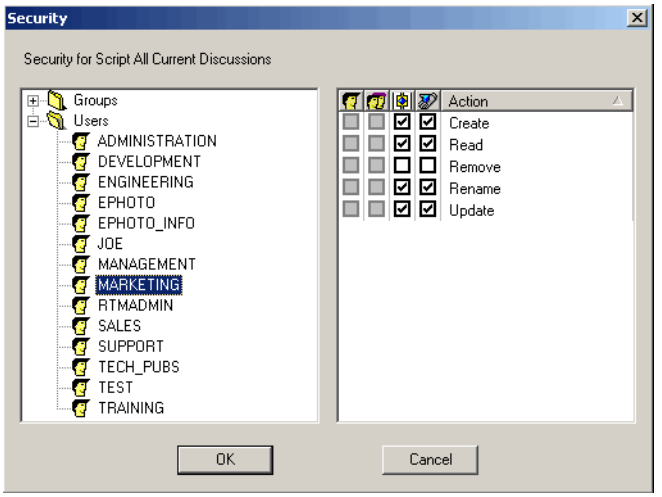

Figure 4-46. User Security for Scripts

3 Expand the **Users** folder by clicking **+**.

4 Select the user for which you want to set security.

5 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.
- Inherited access is indicated by a gray box ▢.
- Explicit access denied is indicated by an unchecked box ☐.

Pending Actions

You can create new pending actions or open existing pending actions.

To create a new pending action:

1 Select the action folder in which you want to add the new action.

2 Select **New > Action** from the **File** menu, or click the **New Action** button .

To open an existing pending action:

1 Select the action you want to open.

2 Select **Open** from the **File** menu, or click the **Open** button .

3 Make your selection and click **OK.**

Starting Other Tools

You can start other Dimensions RM tools from RM Explorer. This includes the administrative tools such as RM Manage and Class Definition, and the documentation interfaces such as RM Word and RM Capture.

Starting Class Definition

To start Class Definition:

- Select **Class Definition** from the **Tools** menu or click the **Class Definition** button .

  Class Definition will be available in read-only mode if it is invoked as a regular project user from RM Explorer. Class Definition will be available in read/write mode if it is started as a project administrator from RM Explorer. If changes are made to the class definition while RM Explorer is still running, the RM Explorer lock must be removed when saving changes to the Class Definition. Changes to the class definition will not be reflected in RM Explorer until the database node has been collapsed and re-expanded, or until RM Explorer has been restarted.

Starting RM Manage

To start RM Manage:

- Select **RM Manage** from the **Tools** menu or click the **RM Manage** button .

Starting RM Concept

To start RM Concept:

- Select **RM Concept** from the **Tools** menu or click the **RM Concept** button .

Starting RM Word

To start RM Word:

- Select **RM Word** from the **Tools** menu or click the **RM Word** button .

Starting RM Capture

To start RM Capture:

- Select **RM Capture** from the **Tools** menu or click the **RM Capture** button .

Lock Management

Dimensions RM classes, objects, collections and source documents are implemented as sets of values within database tables. The set of values that defines a single object or collection is referred to as a record. When records are locked, they cannot be modified. Records may become locked after a system crash. Lock management is provided as a means of freeing records that have been locked as a result of a system crash. It is also desirable to lock records temporarily to prevent others from changing the contents while other actions take place. Lock management also provides a way to lock those records that should not be changed.

For security, only those records that are locked by the current user are available to unlock. If the current user has been granted Unlock privileges, all the user-locked records are available to unlock. Only users who have been granted CM Lock privileges are allowed to lock records for CM purposes. Only users who have been granted CM Lock privileges are allowed to unlock CM locked records.

NOTE You cannot use CM Lock to unlock objects that are baselined.

Locking Objects

The Configuration Management (CM) Lock makes objects read-only and stops records from being updated.

To lock objects:

1. Select **Administer Locks** from the **File** menu, or click the **Administer Locks** button .

   The **Lock Manager** dialog opens.

2 Select the **CM Lock Objects** tab.

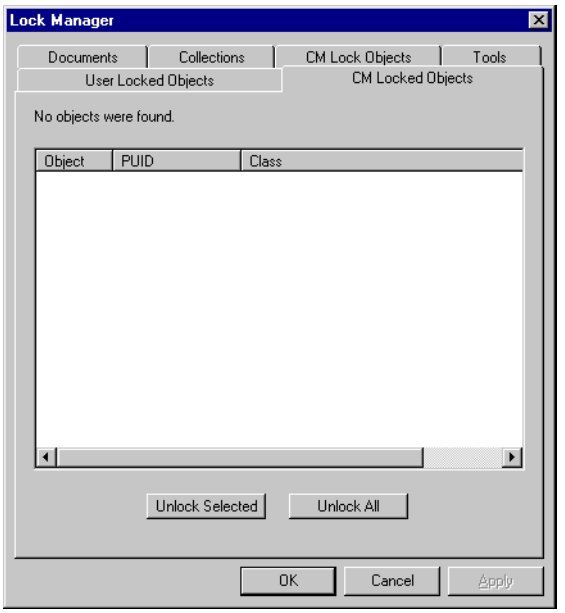

Figure 4-47. CM Locked Objects

3 Select a class from the class list.

4 Select the objects you want to lock from the object list.

5 Select **CM Lock Selected** to lock only the selected objects, or **CM Lock All** to lock all of the objects for the selected class.

6 Click **OK**.

Unlocking Collections: Option 1

To unlock collections:

1 Select **Administer Locks** from the **File** menu, or click the **Administer Locks** button .

2 Select the **Collections** tab.

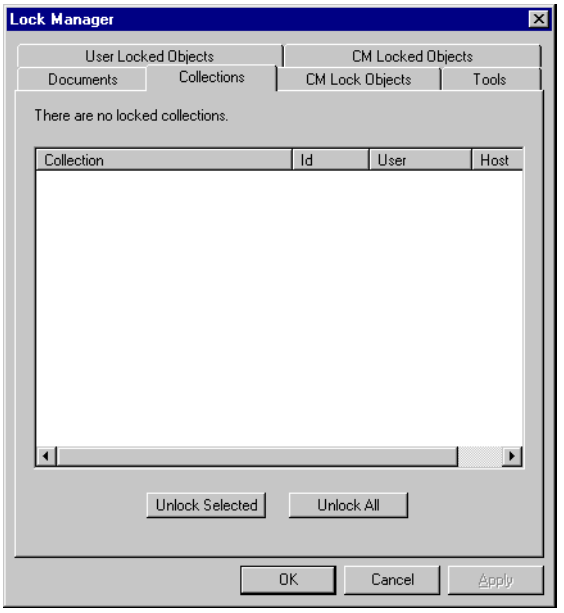

Figure 4-48. Unlock Collections

3 Select the locked collections you want to unlock from the list.

4 Click **Unlock Selected** to unlock just the selected collections. Select **Unlock All** to unlock all the locked collections.

Unlocking Collections: Option 2

To unlock collections:

1 Select the locked collection you want to unlock. If the collection is locked it will have a lock on its icon .

2 Right-click and select **Unlock**.

Unlocking Documents: Option 1

To unlock documents:

1 Select **Administer Locks** from the **File** menu, or click the **Administer Locks** button .

2 Click the **Documents** tab.

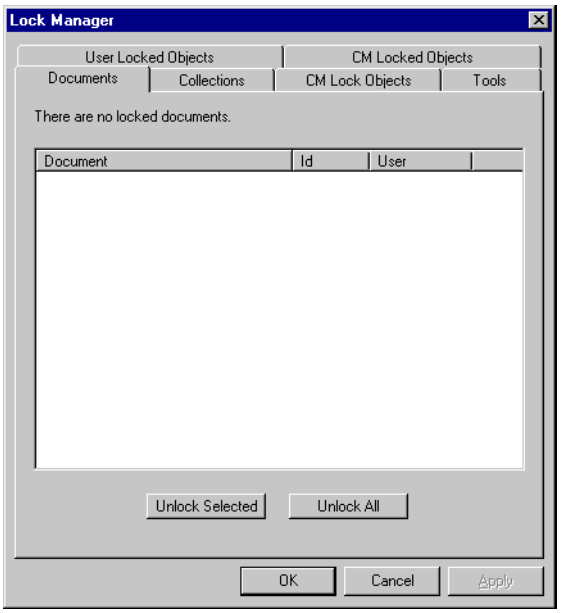

Figure 4-49. Unlock Documents

3 Select the locked documents you want to unlock from the list.

4 Select **Unlock Selected** to unlock just the selected documents. Select **Unlock All** to unlock all the locked documents.

Unlocking Documents: Option 2

To unlock documents:

1 Select the locked document you want to unlock. If the document is locked, it will have a lock on its icon .

2 Right-click and select **Unlock**.

Unlocking Objects: Option 1

To unlock objects:

1 Select **Administer Locks** from the **File** menu, or click the **Administer Locks** button .

2 Click the **Objects** tab.

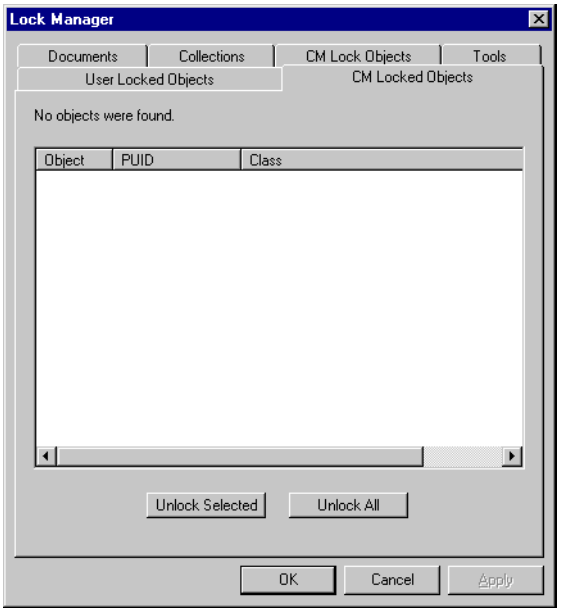

Figure 4-50. Unlock Objects

3 Select the locked objects you want to unlock from the list.

4 Select **Unlock Selected** to unlock the selected objects. Select **Unlock All** to unlock all the locked objects.

Unlocking Objects: Option 2

To unlock objects:

1 Select the locked object you want to unlock. If the object is locked it will have a lock on its icon: .

2 Right-click and select **Unlock**.

Chapter 5

RM Capture

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Overview

Serena® Dimensions® RM stores the objects (that is, units of information assigned to a class) captured from documents in the Dimensions RM project where they can be accessed by the other Dimensions RM tools. RM Capture provides a method for getting plain text captured into objects for analysis and engineering.

RM Capture allows Dimensions RM objects to be extracted from text, based on "rules." Objects stored in the Dimensions RM database are accessible by the Dimensions RM tools. You can capture requirements from text or ASCII documents by using the **Open Input Document** dialog, which lists the documents that are "registered" in the Dimensions RM database. Use RM Capture to define rules for extracting text from documents. Rules are the most important part of the capture process, particularly if you are extracting a number of attributes for each object. You can define alphanumeric and free text rules.

Because RM Capture creates default rules that capture all paragraphs, you can capture objects without rules. However, edit rules may be needed for sophisticated capture operations.

To capture objects from a text document, you need:

- A **source document**, from which you extract objects.
- A **target class**, into which objects are captured
- **Rules** that specify how text is to be captured

Register Input Document

The Register Input Document dialog allows you to register a text document in the Dimensions RM database. Documents are stored with a "logical name," which can contain any number of characters, including spaces. If **Store Document in Database** is checked, a copy of the document is stored in the Dimensions RM project, making it accessible through RM Explorer.

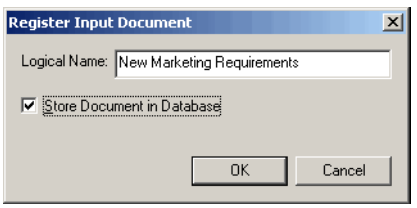

Figure 5-1. Register Document

Opening a Source Document

The **Open Input Document** dialog lists the ASCII documents that are "registered" in the Dimensions RM database.

To open a document:

1 Select a source file.

2 Click **Open** on the **Open Input Document** dialog to retrieve the document from the database.

If the document is not registered, click **From Disk**. This will open a file selection dialog. You can register the document after it is opened.

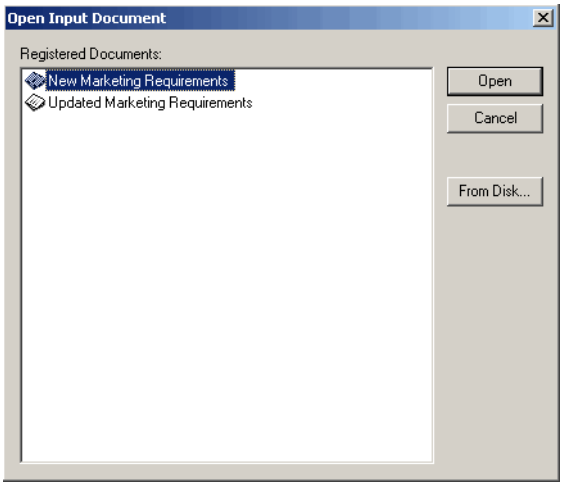

Figure 5-2. Open Document

3 Choose a file. You are prompted whether you want to register the document in the database.

4 Click **Yes** to access the **Register Input Document** dialog.

Set Target Class

Use the **Set Target Class** dialog to specify the class into which objects are captured (RM Capture operates on one class at a time). Because rules are associated with a class, changing classes destroys rules that exist for the current class. To preserve the rules for later use, save them before changing classes.

To set the target class:

1 Select **Set Target Class** from the capture menu or click the **Set Target Class** button .

2 Select the target class for captured objects from the list of classes.

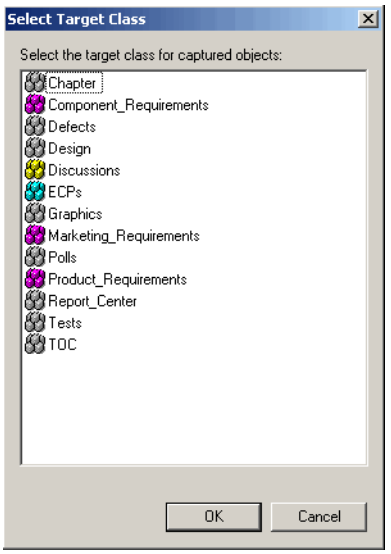

Figure 5-3. Select Target Class

3 Click **OK**.

Capturing Objects

To capture objects from a document:

1 Select an input document.

2 Select a target class. You can edit the capture rules, if needed, by selecting **Edit Rules** from the **Capture** menu or by clicking the **Edit Capture Rules** button .

3 Select **Capture Next** from the **Capture** menu or press **F3**.

NOTE To capture all the objects in the document, select Capture All or press F5. Captured text is replaced with markers. The Pending Objects dialog is displayed, which lists the captured objects.

Pending Objects Dialog

The **Pending Objects** dialog lists all the objects that have been captured from the current document. These objects are not yet in the database.

To open or close the Pending Objects dialog:

- Click the **View Captured Objects** button or select **View Captured Objects** from the **Capture** menu.

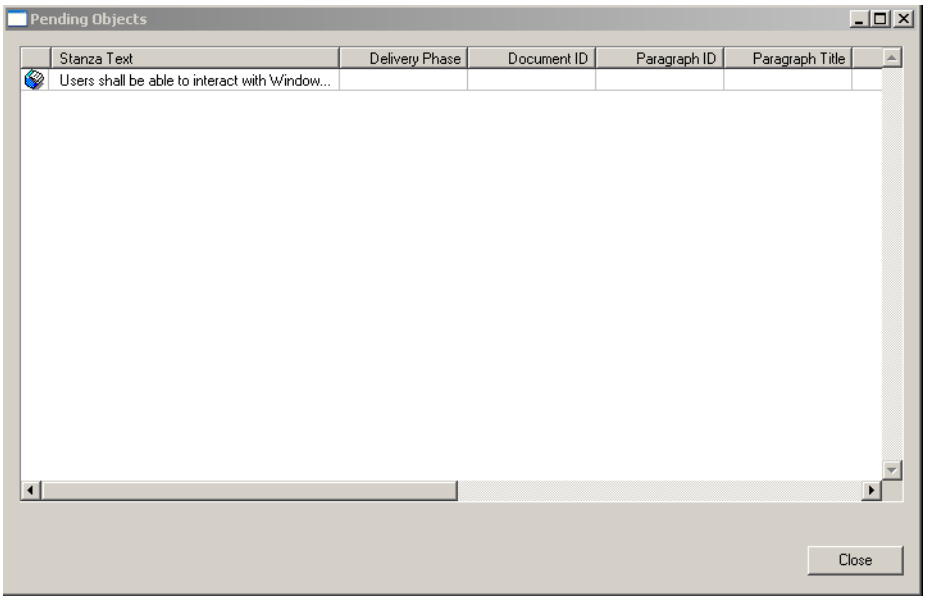

Figure 5-4. Pending Objects

To edit attributes:

- Double-click cells in the table to change the value of any attributes.

To return objects to the document:

1 Select a group of objects.

2 Right-click.

3 Select **Return To Source Document**. This is useful for text that might be batch-captured, but should not be stored in the database (for example, titles and headings).

To store objects in the database:

1 Select a group of objects.

2 Right-click.

3 Choose **Store Selected**. The objects are stored in the database and removed from the **Pending Objects** list. Right-click and select **Store All** to store all pending objects in the database, and remove them from the **Pending Objects** list.

NOTE Captured objects are subject to the same requirements as other objects; for example, mandatory attributes must contain values and dates and must be formatted properly. If an object does not meet the requirements for storage, it will not be stored to the database and an error dialog will be displayed.

Save Source Document

Select **Save Source Document** from the **File** menu to save any changes to the current document. If the document is registered in the database, changes are saved to the database.

Rules Dialog

The **Rules** dialog contains rules used when capturing objects. Rules are the most important part of the capture process, particularly if you are extracting a number of attributes for each object. There are two types of rules: **stanza rules** and **attribute rules**. This is how rules work in the capture operation:

1. Dimensions RM searches the document for the next stanza.
2. The stanza is repeatedly searched, once for each attribute rule. When a rule matches, the attribute is set to the resulting value. A "default value" may be specified for attributes that don't match any of their rules.
3. The stanza's entire text can also be stored in an attribute.

There are several types of rules, and each has its own set of parameters:

- Stanza rules.
- Attribute rules that consist of Alphanumeric, Free-text and List rules.

Each attribute can have any number of rules associated with it. This group of rules is called a *ruleset*.

Contents of the Rules Dialog

The advanced rules dialog is split into two panes. The left side contains a list of your rules, and the right side shows the rule that is currently highlighted on the left side.

The left pane of the **Rules** dialog has the following characteristics:

- Each attribute has a folder icon .
- Mandatory attribute folders are marked with a red "M" .
- Individual rules have a document icon .

Creating and Deleting Rules

To create a new rule for an attribute:

1. Right-click the attribute in the left pane of the **Rules** dialog.
2. Select **New Rule**; or select the attribute and click the **New Rule** button in the right pane.

To delete a rule for an attribute:

1. Right-click the rule.

2 Select **Delete Rule**.

Pattern Matching in RM Capture

A number of rules fields contain "patterns." A pattern can either be text that is to be matched (such as "shall"), or a regular expression.

Regular Expression Syntax

RM Capture's regular expressions are like UNIX expressions. Special characters are as follows:

- **.** matches any character
- ***** matches one or more of the preceding character (an asterisk * will match one or more Alpha characters)
- [ ] matches any characters contained within the brackets. For example, "[abc]def matches the strings "adef, "bdef, and "cdef. This can also contain ranges such as "[a-z], which would match anything between a and z.

NOTE If you need to match any of these characters, you can "escape" them by prefacing them with a backslash ("\).

Here are a few examples:

shall – matches any occurrence of the word "shall."

req [0-9][0-9][0-9] – matches strings like "req001" and "req205," but not strings like "req05a."

req [0-9][0-9][0-9a-z] – matches strings like "req001" and "req05a."

req[0-9]\.[0-9]\.[0-9a-z] – matches strings like "req0.0.1" and "req0.5.a."

Invalid Regular Expressions

It is possible to create regular expressions that are invalid. For instance, "ab[c" is invalid because the brace is not closed, and "*test* is invalid because the first "*" does not have a preceding character. When an invalid regular expression is entered, it is displayed in red. Rules that contain invalid patterns are marked *incomplete* in the left pane of the **Rules** dialog.

Default Values

- Each attribute's ruleset can have a *Default Value*. This value is seen at the bottom of each rule, and in the right pane when the attribute name is selected.
- Each attribute has only one default value. Thus, the default settings will be the same for every rule within a ruleset.

- An attribute is set to its Default Value if none of the attributes' rules match within the stanza.

Example:

One possible default setting is *Most Recent Value*. This is used when text may apply to a number of stanzas that follow it, such as section titles. If you are working with an attribute called *Component* and there are titles in each section identifying the component, you could set up a rule to match the title, then set its default to be "most recent value." This way, all the stanzas that are matched between titles will have their Component attribute set.

Stanza Rules

You can extract three types of stanzas:

- Paragraphs
- Sentences
- Blocks of text

Paragraphs and Sentences

Choose **Paragraphs Containing** or **Sentences Containing** to allow selected paragraphs and sentences to be extracted. For example, choosing **Sentences Containing** and entering **shall** in the text control captures only sentences that contain the word "shall."

Blocks of Text

Start and end delimiters define blocks of text. The available start delimiters are either hierarchical numbers/letters (e.g., A.1) or user-defined patterns (for example, BEGIN REQUIREMENT). Blocks of text can end in three ways:

- When the beginning of the next block is found
- When a blank line is encountered
- At user-defined text (for example, END REQUIREMENT)

Target Attribute

The list box at the bottom of the stanza rule dialog controls the stanza text is assigned to an attribute. If the class contains a free text attribute called "Text," it is the default value for this field.

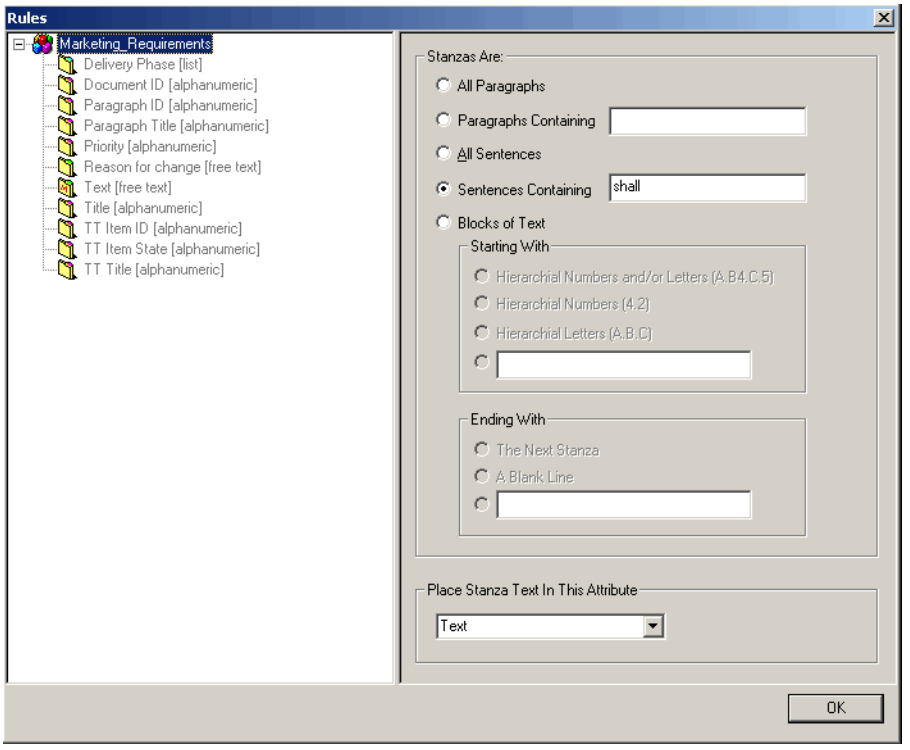

Figure 5-5. Stanza Rule

Rules for Extracting Text Attributes

Free text rules work this way: "If xxx text is found in the stanza, set the attribute to xxx." The following describes the fields in the text attribute rules dialog.

For the Following

The matched text can be hierarchical numbers or letters (e.g., 1.2 or A.1) or a user defined pattern, such as "shall" or req[0-9]*).

Set the Attribute to

The attribute can be set to the matched pattern, the entire line in which the match occurred, the remainder of the line or a user defined string.

Default Value

If none of an attribute's rules match, the Default Value is applied. The Default Value can be the most recent value, a user defined string, or the entire stanza.

Block Capture:

Block capture gives you the ability to define a pattern for both the beginning and end of a block of text. The attribute text will be set to the stanza text between, but not including, the text matching the Block Start Pattern and the Block End Pattern.

To use Block Capture:

1. Check the **Block Capture** check box.
2. Select a starting pattern (note these are just like the selections in "For the Following").
3. Select the pattern for the end of the block. Checking the end of stanza check box will set the end of the pattern equal to the end of the stanza.

The Block Start Pattern and Block End Pattern may be set to any valid regular expression. One special character string applies to the Block Capture patterns; "!EOS" which is used to represent the "end of stanza" in the end patterns, this special string is valid only within the Free Text Attribute Block Capture section.

Example:

1.1 Title for first requirement.

Description:

Some text describing the requirement goes here. The text can be a single sentence or many paragraphs.

Test Date: 01-Jan-2000

Rationale:

Some text explaining the rationale of the requirement goes here.

Verification:

Some text explaining the test and verification procedures.

1.2 Title for second requirement.

This fragment shows a requirement (1.1) that we want to capture as a Dimensions RM object. We want to capture into the following attributes:

Requirement Title,

Description,

Test Date,

Rationale,

Verification

All attributes except Test Date are free text attributes. To achieve this you could use the following rules.

1. Set the stanza rule to capture blocks of text beginning with hierarchical numbers, and ending with the next stanza. Select none for the attribute to receive the stanza text.
2. Set the Requirement Title rule to hierarchical numbers, and set the attribute to the rest of the line.

3. For the Description attribute rule select **Block Capture**, and the **Pattern** radio button. For the block start pattern, type "Description: " (without the quotation marks), and type "Test Date: " (without the quotation marks) in the block end pattern.

4. Set the Test Date rule to Pattern **Test Date:**, and set the attribute to the rest of the line.

5. For the Rationale attribute rule select **Block Capture**, and **Pattern** radio button. For the block start pattern enter "Rationale: " (without the quotation marks), and enter "Verification: " (without the quotation marks) in the block end pattern.

6. For the Verification attribute rule, select **Block Capture**, and the **Pattern** radio button. For the block start pattern, type "Verification: " (without the quotation marks), and check the end of stanza check box to set the end pattern for this attribute to equal the end of stanza. Note the Block End Pattern edit box now shows !EOS.

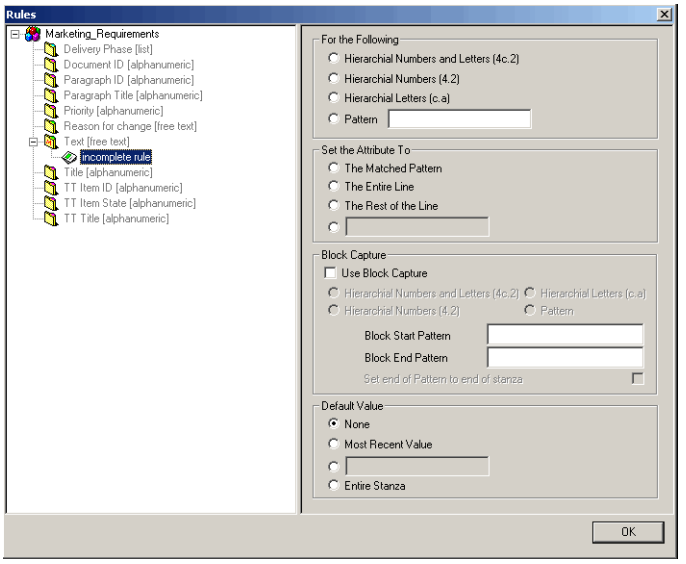

Figure 5-6. Text Attribute Rules

Rules for Extracting List Attributes

List attribute rules work this way: "if xxx text is found in the stanza, set the attribute to xxx value." The following describes the fields in the list attribute rules dialog.

For the Following

The pattern that must be matched.

Set the Attribute to

The list item to which the attribute will be set if the pattern matches.

Default Value

If none of an attribute's rules match, the *Default Value* is applied. The default value can be either the most recent value of the attribute or a list value.

To use List Attribute rules:

A good way to use List Attribute rules is to set up one rule for each possible value. For instance, if you are working with an attribute called "Required, that can have the values "Yes," "No," or "TBD," you could set up one rule for each.

- The first would be "for the pattern 'complies,' in which the attribute would be set to 'Yes.'"
- The second would be "for the pattern 'does not comply,' in which the attribute would be set to 'No.'"
- The default value would be "TBD."

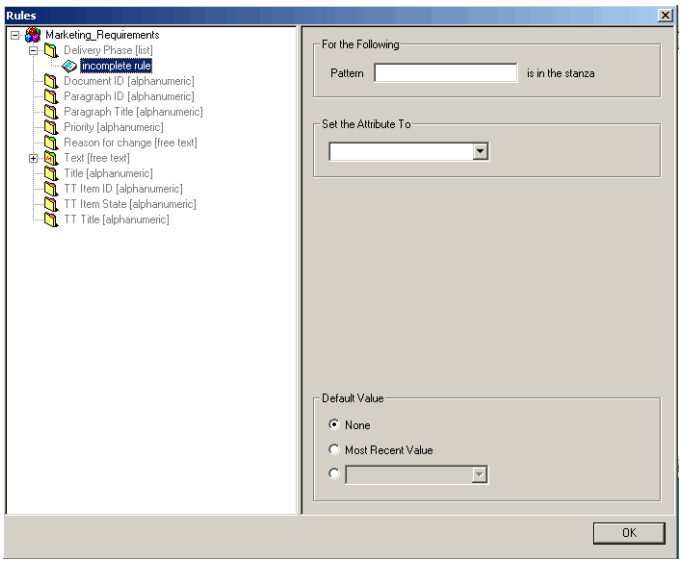

Figure 5-7. List Attribute Rules

Saving Rules

Rules are stored to the Dimensions RM database, allowing access from any computer.

To save rules:

1. Select **Rules** > **Save Rules** from the **File** menu.
2. Type a name in the **Rules Name** field in the **Save Rules** dialog, as shown in the following illustration.

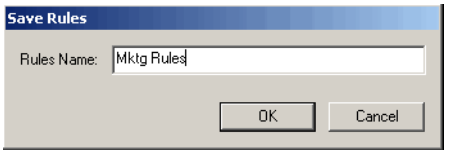

Figure 5-8. Save Rules

3. Type a text string to identify the rules (the string may contain spaces).
4. Click **OK**.

Alternatively, you can save your rules to a file.

To save rules to a file:

1 Select **Rules** and **Export Rules** from the **File** menu.

2 Enter a pathname in the **Export Rules** dialog.

Loading Rules

To load saved rules:

1 Select **Open Rules** from the **File** menu.

2 Select a rule from the list.

3 Click **OK**. When the rules have loaded, the **Rules** dialog is displayed.

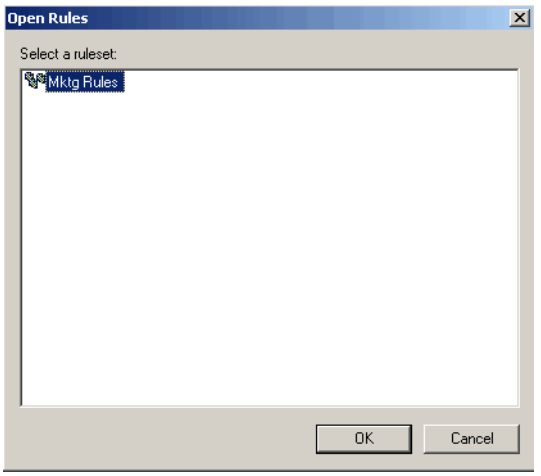

Figure 5-9. Open Rules

NOTE Because rules are class specific, loading a ruleset will change the target class.

Chapter 6

RM Word

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Overview

Traditionally, requirements and other engineering project information is described and communicated about in documents. Hardcopy or electronic documents work well for many tasks that engineers perform such as reading and review. Some tasks (such as managing linkages to other external artifacts like tests, or preventing accidental changes), however, are not easily performed with hardcopy documents or electronic versions managed by desktop publishing tools. The RM Word integration is designed to help you accomplish these more complex tasks. This tool helps you to capture the interesting or important parts of documents, control their content and state, and link them to other artifacts within the Serena® Dimensions® RM project database to make the most of the information they contain.

Dimensions RM is integrated with Microsoft® Word, enabling you to perform requirements management tasks through a familiar word processing interface. You can use Word for capturing requirements from documents, evolving those requirements, and updating your documents. Once the data is present in the Dimensions RM project database, you can also use the other Dimensions RM tools to manipulate the project data. You can import data from the project into your documents regardless of whether it was originally captured from documents. You can also distribute captured data to non-Dimensions RM users throughout the enterprise who use the standard versions of Word, and re-synchronize their inputs with the project database.

Tasks You Can Perform with RM Word

The following table identifies the general categories of tasks you can perform with RM Word.

Task	Description
Capture Requirements Text from Documents	RM Word lets you capture text within a document into the project database. Capturing selected text can range from a single phrase embedded within a paragraph to several paragraphs of text. For details on capturing text, refer to "Capturing Objects" on page 226.
Update Documents from Project Content	Use the import facility to update documents from project content. This lets you to build a document containing all the objects with which you want to work. RM Word logs the number of object attributes in the document that were updated with the information stored in the project for that object. Refer to "Importing Objects and Other Data from the RM Database" on page 243 for details on updating documents.
Evolve Requirements in Documents	If objects in the database are evolving and updated, you can regenerate these requirements in the document. See "Synchronization with Established Documents" on page 220 for details.

Task	Description
Update Project Content from Documents	You can update project content from information captured from Word documents. RM Word logs the number of objects updated in the project with the text found in the document. See "Synchronization with Established Documents" on page 220 for details.
Editing the Attributes of Captured Objects	Objects can be captured from or imported into a document, and manipulated through Dimensions RM functions in Word. Use the Dimensions RM Object Editor to edit the text of an attribute. You can save, delete or undelete the edits you have made. See "Editing Captured Objects" on page 239 for details.

RM Word User Interface

The Dimensions RM integrations with Word add a number of enhancements to the standard Word interface. The first enhancement is the addition of an **Dimensions RM** menu. The **Dimensions RM** menu provides access to all of the functionality provided by the Dimensions RM interface.

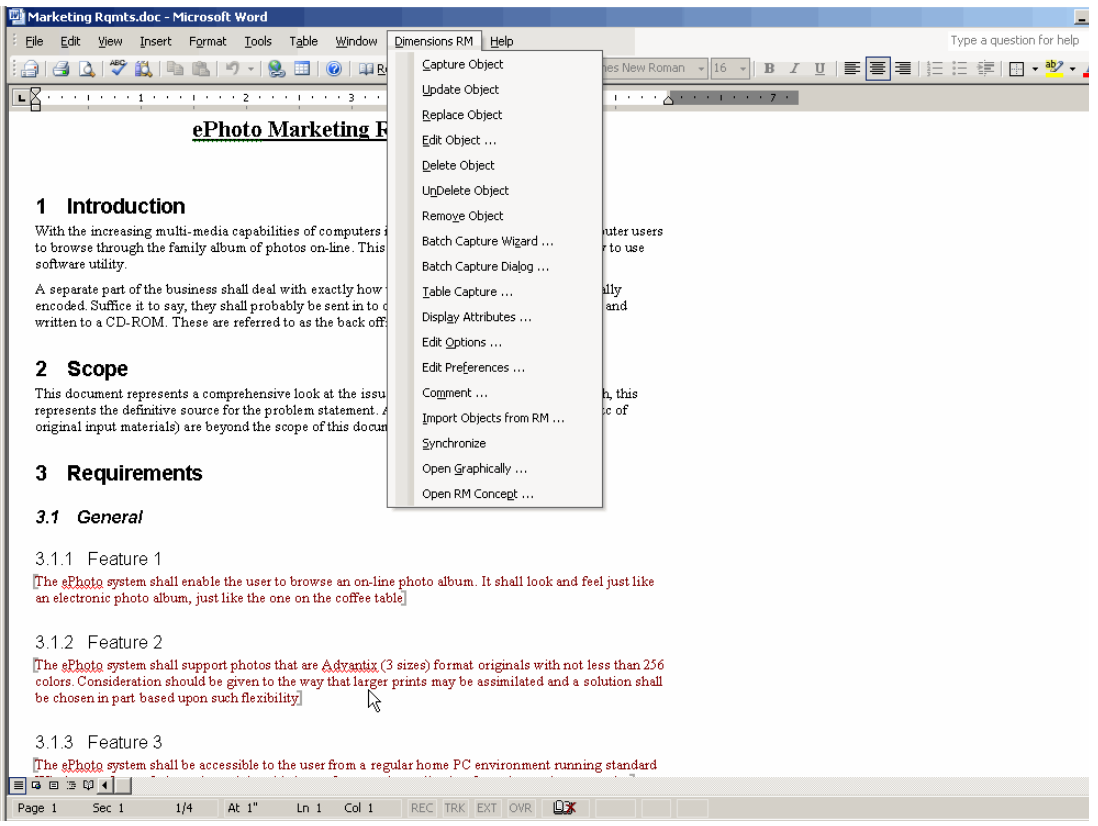

Figure 6-1. Dimensions RM Menu

A floating toolbar provides easy access to the more common functions of the Dimensions RM interface.

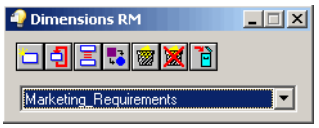

Figure 6-2. Floating Toolbar

The following table identifies the **Dimensions RM** toolbar buttons.

Capture Object

Update Object

Replace Object

Edit Object

Delete Object

Undelete Object

Remove Object

The drop-down list at the bottom of the **Dimensions RM** toolbar provides a list of the classes into which you can capture objects. Choose a class from this list before you invoke the capture operation. Be sure that you have set up the text, graphic, paragraph ID and paragraph header attributes to be captured in the **Preferences** dialog prior to capturing as well. Refer to "Setting Capture Preferences" on page 215.

Dimensions RM also modifies the Word **File** menu and **Standard** toolbar. The **Save As**, **Save All**, **New**, and **Open** menu items are removed, and the **Save**, **Close** and **Exit** menu items are controlled by Dimensions RM.

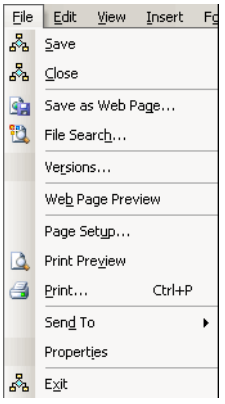

Figure 6-3. File Menu from Microsoft Word 2003

The following describes the Microsoft Word commands controlled by Dimensions RM.

- **Save** performs a normal document save and saves a list of objects in the document to the project.
- **Close** closes the document and prompts you to open another.
- **Exit** performs a normal save, saves a list of objects in the document to the project and closes RM Word and Dimensions RM.

NOTE On the standard toolbar, the **New**, **Open** and **Save** buttons are removed.

Preparing to Use RM Word

RM Word was designed to provide a convenient, effective mechanism for you to manage requirements documents in your familiar desktop publishing environment while gaining the security, attribute management, and traceability benefits of the Dimensions RM project database. There are some simple preparatory activities that you need perform to establish and maintain the linkages between your documents and the project database. This section outlines these activities for initial setup as well as ongoing maintenance.

Initial Setup for Documents

You must perform the following tasks before you can use Dimensions RM with Word:

1 Register the document.

2 Set up document security.

3 Set up options and preferences.

Document Registration

In order to use a document in Dimensions RM with RM Word you must register the document with the project. Registration associates the logical name of a project with a path to the physical file. The logical name appears in Dimensions RM windows and can be captured into objects as the origin of the object. You can move the file at any time afterward, but you will have to provide the new path when you open the file.

1 Select **RM Word** from the **Tools** menu in RM Explorer or RM Concept. You can also start RM Word directly from the Windows **Start** menu or its shortcut on your desktop.

2 Select a document you want to register.

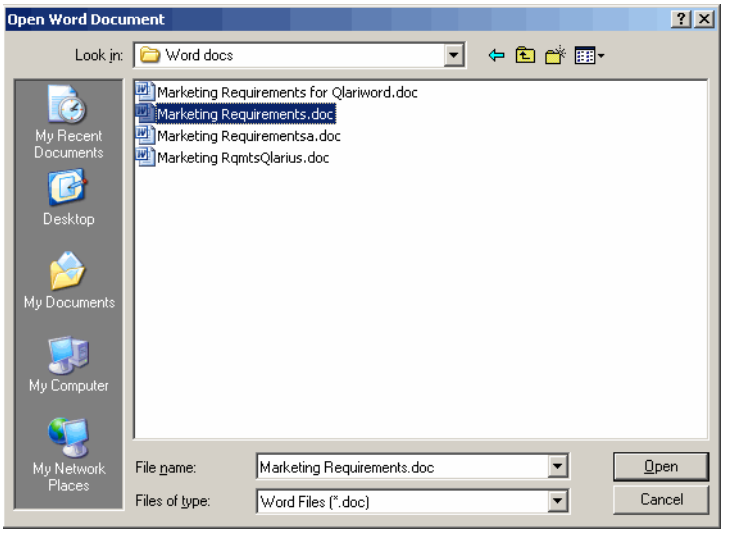

Figure 6-4. Open Document Dialog

3 Click **Open**. If the document has not been previously opened in Dimensions RM, you must register it with the Dimensions RM project.

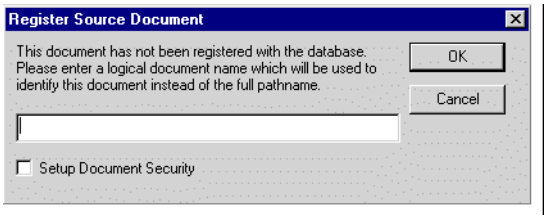

Figure 6-5. Register Source Document Dialog

4 If the document needs to be registered, enter a logical name for it.

5 Click **OK**.

You also may set document security and synchronize it with the database.

NOTE If the document was used with previous versions of Dimensions RM, the document can be converted to the new Dimensions RM format, if needed.

Document Security

Document security can be set up as part of the registration process. This optional step allows you to restrict access to document-related transactions to specific groups or users.

To set document security for a group:

1 Open a document in RM Word to begin the registration process.

2 Enter the document name in the **Registration** dialog.

3 Select **Setup Document Security** if you want to set document security preferences.

4 Click **OK**.

5 Expand the **Groups** folder by clicking the + symbol.

6 Select the group for which you want to set security.

7 Change the access rights for a transaction by selecting the transaction.

- Explicit access granted is indicated by a checked box ☑.

- Inherited access is indicated by a gray box ▢.

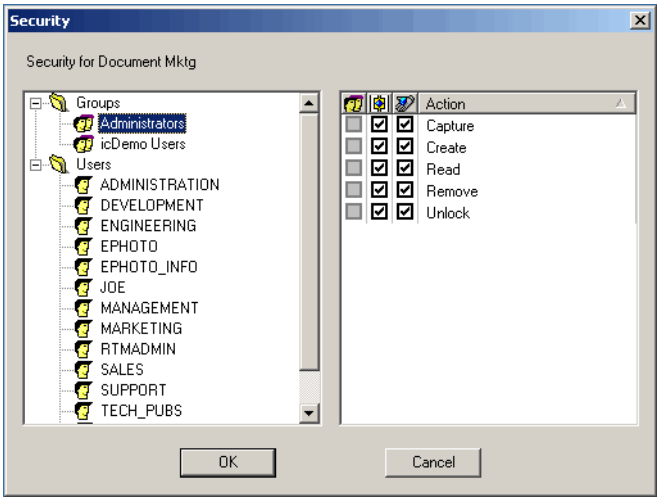

Figure 6-6. Group Security for Documents Dialog

8 Select the security settings you want to give the group.

9 Click **OK**.

Setting Capture Preferences

This step allows you to specify choices to control details of capture and display. Default choices are provided. There are three capture-related categories of preferences that can be set for the RM Word interface.

- **Attributes** allows you to specify which attributes of the class will hold the paragraph ID, the paragraph title and the actual paragraph text, or Graphic/OLE Object. Until the paragraph text, or Graphic/OLE Object attribute has been specified, you will not be able to capture objects in the document into a class (for Requirement Classes the text attribute is selected by default).
- **Colors** allows you to define the colors that will be used to render the objects in the document for the existing, deleted, and dry run object states.
- **Insertion Attribute** allows you to specify other, non-text attributes that you want included in your document text.

Each of these categories is represented by a tab in the **Preferences** dialog, shown in Figure 6-7, Figure 6-8, and Figure 6-9. To display the **Preferences** dialog, select **Edit Preferences** on the **Dimensions RM** menu.

Specifying Attributes to Hold Captured Data

Once the **Preferences** dialog is displayed, select the class for which you want to set the attributes by selecting the class name from the drop-down menu shown in the **Class Name** box. This box is found on the **Attributes** tab and the **Colors** tab, and the class can be set from either one. Once the class has been selected you can proceed to set the preferences.

To set the attributes to associate with the constituent parts of the object, click the **Attributes** tab (shown in Figure 6-7). Then select the attribute to associate with each of the object components by selecting the appropriate attribute name from the drop down-menu to the right of the component name. An attribute must be associated with the **Text**

or **Graphic/OLE** field, but all other fields may be left unassigned with the result that no data will be captured automatically from the document for the particular component.

If the **Paragraph ID** and **Paragraph Header** are selected, you may want to specify whether to specify the **Auto or Manually Numbered Paragraph IDs** option in the **Options** dialog (see "Options for Object Display and Capture" on page 218). To access that dialog, select **Edit Options** on the **Dimensions RM** menu. The default is **Auto Numbered**. In order for the Paragraph ID/Header to be captured, it must be in "HeadingX style, for example, Heading 1 or Heading 7.

You can change the preferences at any time. However, changing the attribute associations will affect only objects that are captured after the preferences have been set.

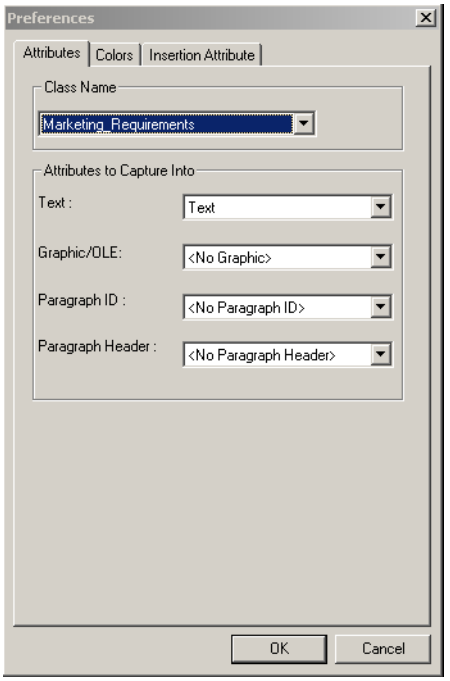

Figure 6-7. Preferences Dialog–Attributes Tab

Specifying Colors for Displaying Captured Data

To set the color preferences for a class, click the **Colors** tab if it is not already in view. Dimensions RM provides a default set of colors which will be used to render the objects in the document. You can change any of the colors by selecting the desired color from the drop-down menu to the right of the object state you want to change.

The existing state refers to captured text. The deleted state refers to text which was, at one time captured, but for which the corresponding object has been since been marked as deleted in the project database. The dry run state refers to text, which has been identified for capture in a batch capture, but which has yet to be confirmed and captured. See "Dry Run" on page 234 for details on dry run for batch capture.

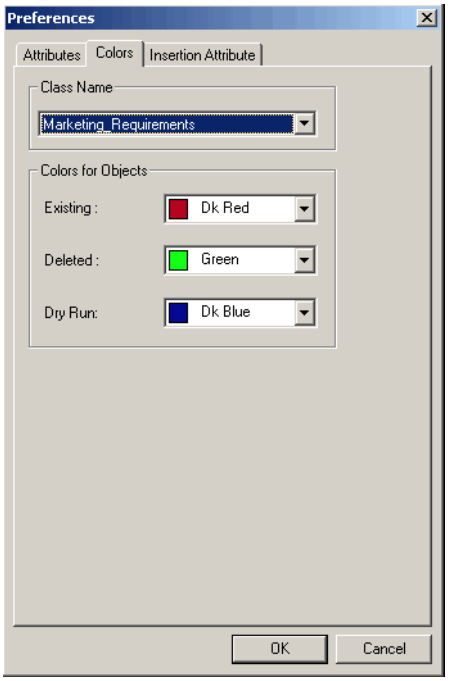

Figure 6-8. Preferences Dialog–Colors Tab

To set the preferences for other classes, you need only select the class name for the next class you want to configure from the drop-down menu shown in the **Class Name** box. When you have finished configuring the classes, click **OK** to close the dialog, **Apply** to save your changes without closing the dialog, or **Cancel** to exit without saving changes.

You may change the preferences at any time. However, changing the attribute associations will affect only objects that are captured after the preferences have been set. Changing colors causes all objects in the document to be updated to reflect the new colors when the preferences are saved.

Specifying Additional Attributes for Insertion

On the **Insertion Attribute** tab of the **Preferences** dialog, you can identify non-captured attributes, including implicit attributes such as PUID or Current Status and user-defined attributes. These attributes are inserted into the document adjacent to your captured objects.

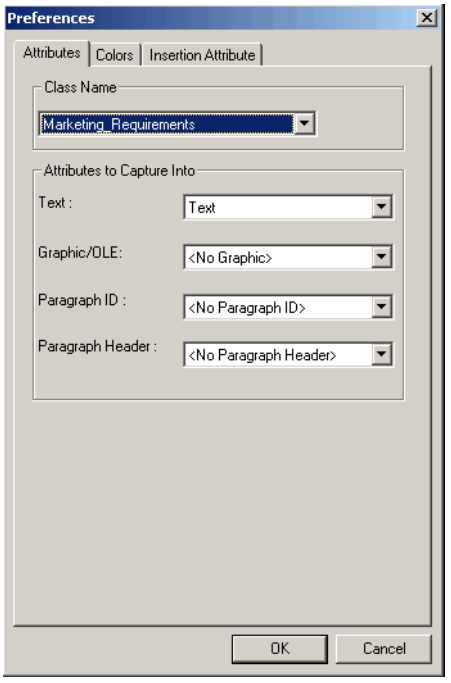

Figure 6-9. Preferences Dialog–Insertion Attribute Tab

To specify an attribute insertion:

1. Choose the class with which you want to work. As with the other **Preferences** dialog tabs, you can specify insertion attributes for any class in the **Class Name** dropdown list at the top of the tab.
2. Select the attribute to be inserted from the attribute dropdown list.
3. Choose a character style to apply to the inserted attribute. The choices available from the **Style** dropdown list are those already defined in your document.
4. Choose a position relative to your captured attribute. For text attributes, you can place the inserted attribute in a paragraph above, below, or in the same paragraph as the captured attribute (either just before or after the captured text). For captured tables, you can insert attributes in a new cell before or after the captured text.
5. Click **Apply** to save changes for each class/attribute combination.
6. Click **OK** to save any unsaved changes and exit the **Preferences** dialog.

Options for Object Display and Capture

To display the **Options** dialog, select **Edit Options** on the **Dimensions RM** menu. To set the option, select the appropriate tab. There are five options that can be set for RM Word. The tabs in the **Options** dialog are described as follows.

- **Object Update**. You may select to update objects in the document that have been captured and have Paragraph ID or Paragraph Name attributes populated from auto-

generated paragraph numbering. Choose this option when document paragraph numbers or paragraph names are no longer in sync with the captured objects.

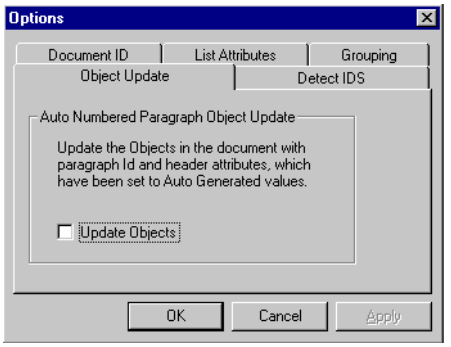

Figure 6-10. Options Dialog–Object Update Tab

- **Detect IDs**. You can select either auto-generated or manually-numbered paragraph IDs when capturing objects (and populating the Paragraph ID attribute).

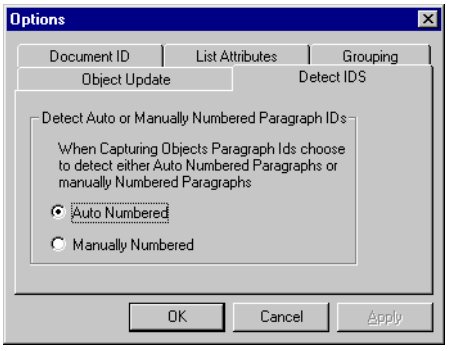

Figure 6-11. Options Dialog–Detect IDs Tab

- **Document ID**. You can have the document name captured into the Document ID attribute whenever an object is captured.

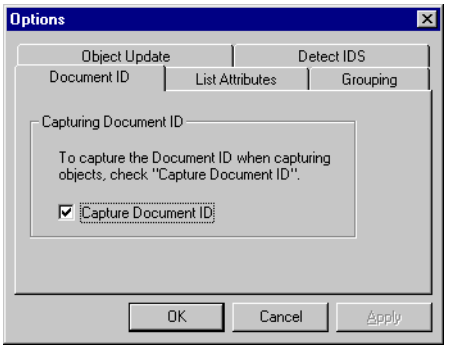

Figure 6-12. Options Dialog–Document ID Tab

- **List Attributes:** Dimensions RM is normally case-sensitive when handling list attribute values. Use the **List Attributes** tab to turn off case sensitivity when needed for capturing or managing list attributes in a document.

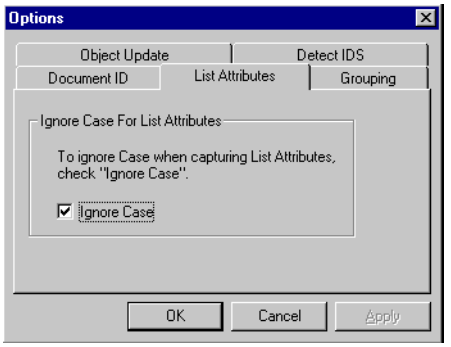

Figure 6-13. Options Dialog–List Attributes Tab

- **Grouping**. Use the **Grouping** tab to specify the positioning of inserted attributes for objects that have been expanded in the project database. If you have an object in the document with inserted attributes, and then that object is expanded in the project database, synchronization will bring in all of the new variants of that object with their inserted attributes. You can choose to have the attributes located with their corresponding object (select **Object**) or to have the attributes placed together (select **Attribute**).

Figure 6-14. Options Dialog–Grouping Tab

Synchronization with Established Documents

Once a document has been registered and some or all of its content captured into Dimensions RM, there are ongoing setup and maintenance activities required to allow you to use RM Word to best advantage. Synchronization is the RM Word feature that automates the task of ensuring that the document and project database content are consistent. Additional captures are governed by the same preferences and options used for initial document set up.

Before operations can be performed on objects in a registered document from which objects have been captured, the document must be synchronized with the database.

NOTE If you try to synchronize a baselined object, you receive a message informing you that the attribute is read-only and cannot be changed.

Starting the Synchronization Process

When you open the document, you will be prompted to start the synchronization process. No operations will be allowed on the document until you perform this synchronization step. You can also choose to synchronize changes at any other time by selecting **Synchronize** from the **Dimensions RM** menu. During synchronization, RM Word runs through the document and compares each object in the document with the corresponding object in the project database.

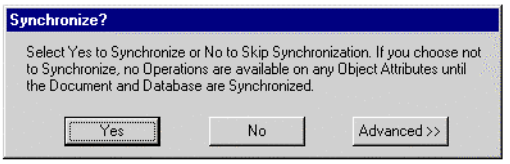

Figure 6-15. Synchronize Dialog–Confirmation

If you clicked **Yes** on the **Synchronize** dialog, synchronization starts. If you click the **Advanced** button, the dialog expands to display the **Advanced Options** section.

Advanced Options

The advanced options are in three groups.

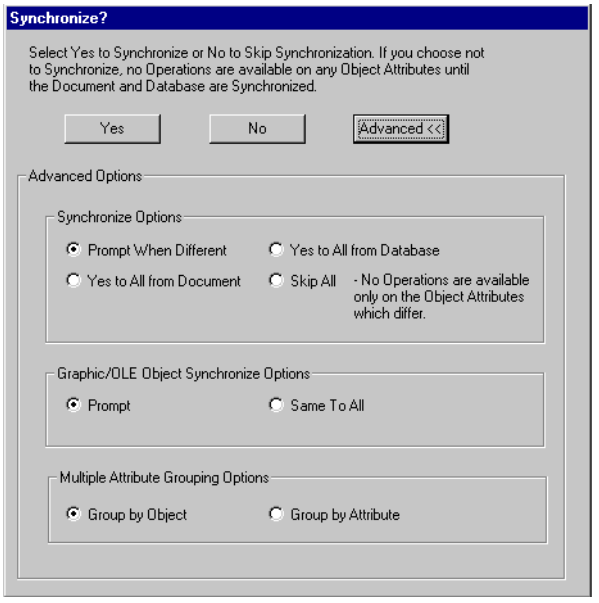

Figure 6-16. Synchronize Dialog–Advanced Options

- **Synchronize Options**
  - **Prompt When Different**

    Prompt when the object in the document is different from the object in the database.
  - **Yes to All from Document**

    Synchronize only objects in the document's text. If you want to save the document text, you must choose whether to update or replace the objects in the database before selecting **Yes to All**. If some objects have been engineered in the database, which prevents updating the database from the document, those objects are skipped.

- **Yes to All from Database**

  Synchronize all objects.

- **Skip All**

  Do not synchronize objects. If you select **Skip All**, objects in the document that require synchronization shall not be available.

- **Graphic/OLE Object Synchronize Options**
  - **Prompt**

    Prompt when the graphic object in the document is different from the object in the database.

  - **Same to All**

    Select Same to All if you do not wish to compare all OLE objects and Dimensions RM will assume that all (non-engineered) OLE objects are identical. This synchronizes all graphic objects in the database.

- **Multiple Attribute Grouping Options**
  - **Group by Object**

    If an object has been expanded in the database, it may be replaced by its children during synchronization.

  - **Group by Attribute**

    Attributes for multiple objects will be grouped by attribute and placed together in the document.

Viewing Differences

After you initiate synchronization, if any object has changed in the document or in the database (or if the object is a Graphic/OLE Object), the **Synchronize** dialog is displayed. In the **Synchronize** dialog, each change is displayed separately. You can compare object text from the document and the project database for each object, and where changes have occurred, choose which content is to be retained. The object content is displayed with color coding to indicate changes as follows:

- Black—the text is unchanged in either the document or the database
- Red—the text has been changed in the document
- Green—the object has been deleted in the database
- Blue—the object has been engineered in the database

NOTE Graphic/OLE objects are always considered to have changed due to the way in which they are stored.

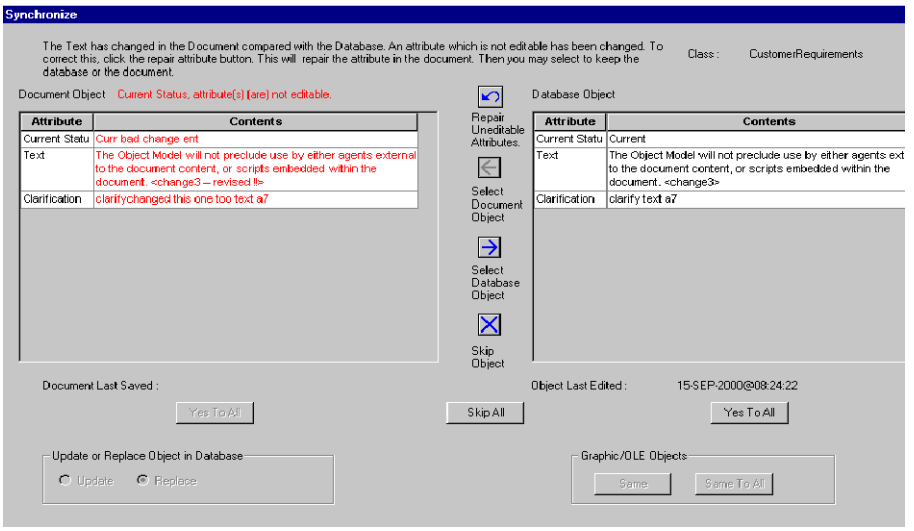

Figure 6-17. Synchronize Dialog–Text and Inserted Attribute Changes Shown

Propagating Changes

For each difference found between the document objects and their counterparts in the project database, you must select which object, the database content or the document content, to keep, or to skip synchronization. There are four possibilities.

- The object has been changed in the database, but not in the document.
- The object has been changed in the document, but not in the database. Any changes to inserted attributes can be made to the database.
- The object has been changed in both the document and the database. You will have to accept the database change or skip synchronizing these objects.
- Inserted attributes have been changed in the document, but cannot be changed in the database because they are protected or because they are implicit attributes managed by Dimensions RM.

In the first case, you can choose to propagate the database content to the document or skip synchronizing that object. In the second case, you can choose to propagate the document content to the database or skip synchronization. In the third case, you cannot update the database with document changes; you must either update the document with the database content or skip synchronization. In the fourth case, you can update the document with correct values from the database using the Repair uneditable attributes button in the synchronize dialog.

To propagate document change to the project database:

1. Choose whether to update or replace the object in the project database with the document object by selecting **Update** or **Replace** in the lower left corner of the dialog.
2. Select **Select Document Object**. RM Word updates the database content using the current document content.

To propagate a database change to the document:

- Select **Select Database Object**.

To skip synchronizing the object:

- Select **Skip Object**. Select **Skip All** to make the current and subsequent objects in the document unavailable.

To accept all document changes:

1. Choose whether to update or replace the object in the project database with the document object by selecting one of the radio buttons (**Update** or **Replace**) in the lower left-hand corner of the dialog.
2. Click the **Yes To All** button below the document object. If you select **Yes to All** document objects, and some objects have been engineered in the database, those objects are skipped.

To accept all database changes:

- Click the **Yes To All** button below the database object.

If the object has been engineered in the database, the relevant objects are shown in the **Synchronize** dialog box and may be imported into the document in place of the object currently there. For example, if an object has been expanded in the database, the object in the document is replaced with its children.

If the object has been removed from the database and has no parent object, the object is changed to normal text in the document. If a parent is available, it is replaced in the document instead of reverting to the document object to normal text.

If the objects shown in the **Synchronize** dialog are Graphics/OLE Objects, **Same** and **All Same** are also available options. RM Word does not compare Graphics/OLE Objects automatically; rather, it prompts you for each object. If the objects are the same, select the **Same** option. If you do not wish to compare all Graphics/OLE Objects, select **All Same**, and Dimensions RM will assume that all (non-engineered) Graphics/OLE Objects are the same.

NOTE You must turn off **Float over text** in Microsoft Word for Office 97 before capturing and synchronizing graphics. To turn off this option, select the graphic and click **Object** on the **Format** menu. Click the **Position** tab on the **Format Object** dialog and make sure that the **Float over text** check box is cleared.

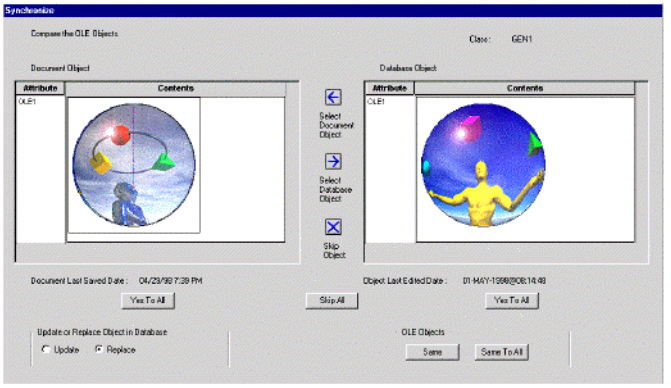

Figure 6-18. Synchronize Dialog—Graphic/OLE Objects

Viewing the Synchronization Summary

After all objects in the document are compared with the objects stored in the database, the **Summary** dialog opens, which shows a summary of the synchronization.

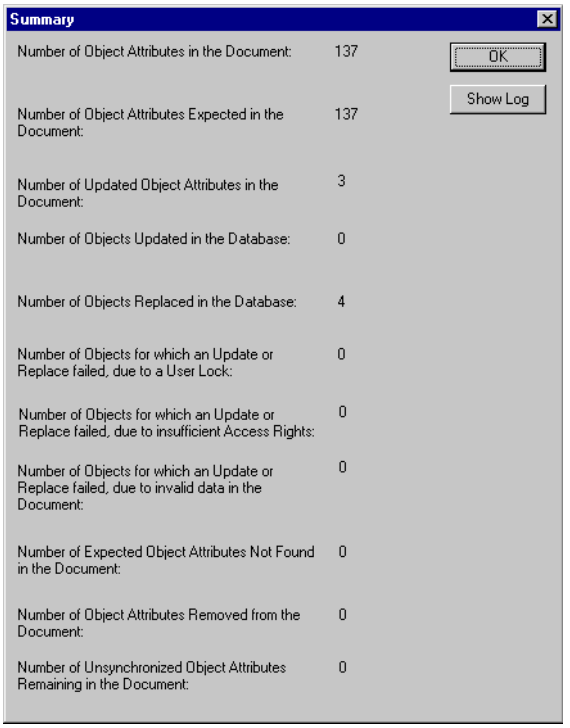

Figure 6-19. Summary Dialog

Field	Description
Number of Object Attributes in Document	The number of object attributes in the document when the document was opened.
Number of Object Attributes Expected in the Document	When the document was last saved, a list of the object attributes in the document was saved in the database. The number here is the number of object attributes that should be in the document according to that list. If a registered document is copied and registered as a new document, the number of expected object attributes will be 0.
Number of Updated Object Attributes in the Document	The number of object attributes in the document, which were updated with the information stored in the database for that object.
Number of Objects Updated in the Database	The number of objects updated in the database with the text found in the document for that object.
Number of Objects Replaced in the Database	The number of objects replaced in the database with the text found in the document for that object.

Field	Description
Number of Objects for which an Update or Replace failed, due to a User Lock	The Number of objects for which an Update or Replace failed during the synchronization, due to a User Lock.
Number of Objects for which an Update or Replace failed, due to insufficient Access Rights	The number of objects that could not be updated because you do not have update access.
Number of Objects for which an Update or Replace failed due to invalid data in the document	The number of objects for which attribute changes in the document violate type or range constraints for the attribute definition.
Number of Expected Object Attributes not found in the Document	When the document was last saved, a list of the object attributes in the document was saved in the database. The number here is the number of objects in that list that were not found in the document.
Number of Object Attributes Removed from the Document	The number of object attributes which were removed from the document because the object has been removed from the database. The text for the object attribute remains in the document.
Number of Unsynchronized Object Attributes remaining in the Document	The number of object attributes that were left unsynchronized when synchronization was last run.

To view a detailed summary:

- Click the **Show Log** button in the **Summary** dialog. The log can be saved to a text file.

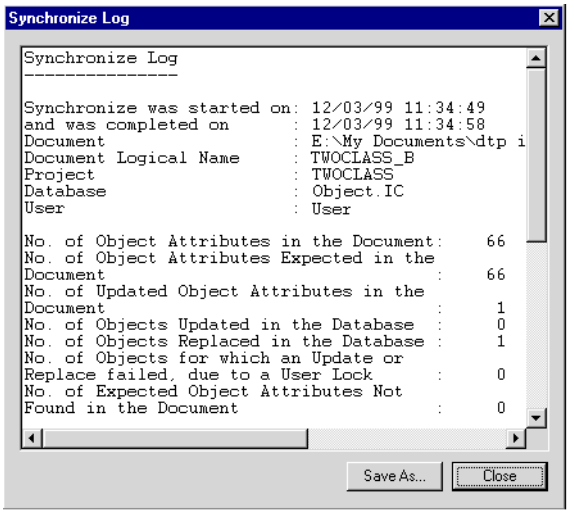

Figure 6-20. Synchronize Log

Capturing Objects

When you capture content from a document, it is stored in the project database as an object of some particular class. The captured content is stored in text or graphic attributes as appropriate.

RM Word allows three modes of data capture within the document, Manual Capture, Table Capture and Batch Capture. Manual capture allows you to select the text or OLE Object to capture for each object. The selection can range from a single phrase embedded within a paragraph to several paragraphs of text. Table capture allows you to capture of the table content as objects and attributes in the project database. Batch capture works on either the entire document or a selected portion of the document and captures each paragraph or sentence (based on user-specifications) as a new object.

The capture method you choose to use depends very much on the structure of the document you are about to process. If the document is well structured with each object being a separate paragraph, batch capture provides a quick method of extracting all of the data from the document. However, if the document is not well structured, with objects being spread throughout the text, manual capture may provide a more precise means of extracting the objects from the document.

NOTE If a text attribute is HTML-enabled and is populated with the text from the Word document, then RM Word allows the object to be created. However, the HTML elements are not preserved as text but are rather interpreted as formatting instructions. For information about HTML-enabled text attributes, see the *Serena Dimensions RM Administrator's Guide*.

Setting Your Capture Preferences

Before you perform any capture, it is advisable to check your capture preferences setup to be sure that you'll be capturing what you want in the way that you want it. Refer to "Setting Capture Preferences" on page 215 for complete instructions.

Manual Capture

To capture an object manually:

1. Select a class on the **Dimensions RM** toolbar (be sure to check that your capture preferences are correct).

2. Select the range of text that you want to capture.

   You can select any amount of text, from a single character to an entire document, or highlight an OLE Object. You cannot recapture text that is already part of a Dimensions RM object.

3. Choose **Capture Object** on the **Dimensions RM** menu or click the **Capture Object** button on the **Dimensions RM** toolbar.

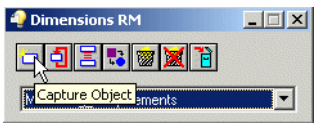

Figure 6-21. Dimensions RM Toolbar

   The object is captured and stored in the database. RM Word updates the text color to the color specified in the preferences to show the object's new status and bookmarks are inserted around the object.

   If the class defines mandatory attributes but does not supply default values, RM Word prompts you to supply values to the mandatory attributes using the object editor.

4. Enter values for the mandatory attributes.

5 Click the **Create** button in the object editor to complete capturing the object. The following illustrations show the text before and after capture.

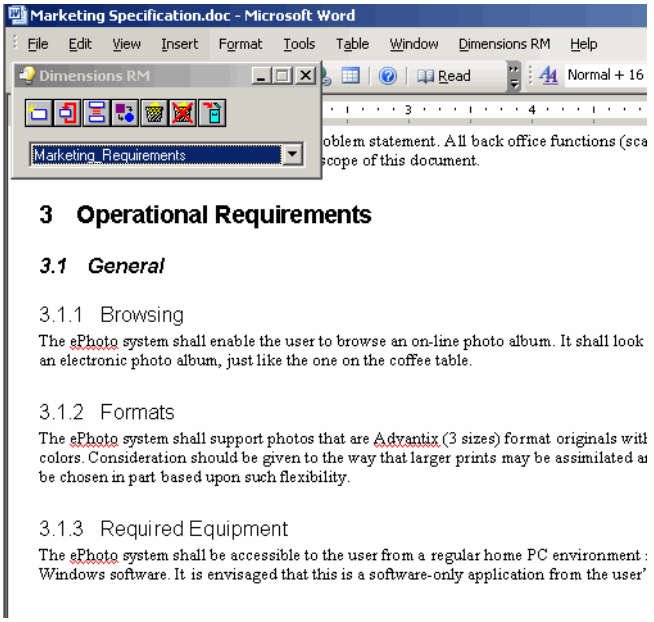

Figure 6-22. Text before Capture

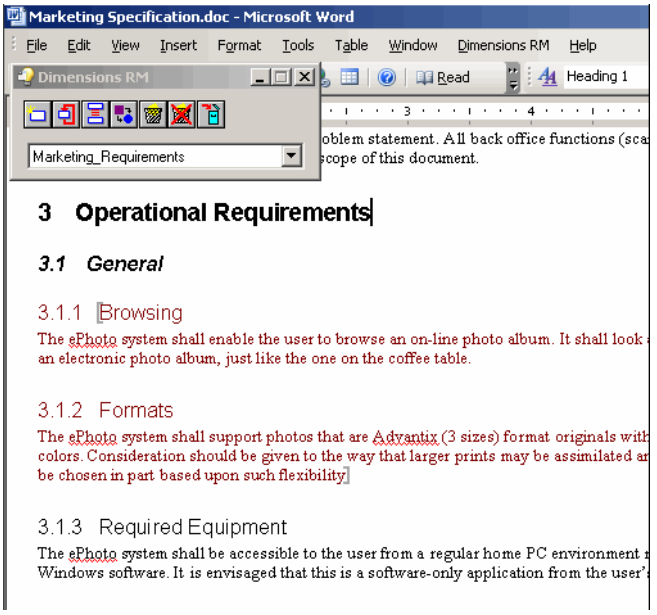

Figure 6-23. Text after Capture

Batch Capture

Batch capture can work on either the entire document or on a selected portion of the document. In either case, batch capture uses your capture preferences to guide automatic capture. There are two phases to the batch capture process. In the first phase, candidate objects are identified in your document based on your capture preferences. In the second phase, the results of the first phase are presented to you in a dry run dialog for modification, cancellation, or confirmation.

There are two ways to initiate to batch capture: the **Batch Capture Wizard**, which steps you through all of the decisions to be made, and the **Batch Capture Expert** dialog, which presents a one-page dialog of the same decisions. Both approaches offer you the ability to review and change your capturing preferences before starting the actual capture process. The two methods produce the same results. If you have not performed many batch captures in the past, you might prefer to start with the wizard and move to the expert dialog later.

Using the Batch Capture Wizard

To begin batch capturing using the Batch Capture Wizard:

1. Identify the text that you want to capture. Is it the whole document or just a portion? Into what class will you be capturing?

2. If you want to batch capture from a subset of a document, select that subset in the text.

3. Select **Batch Capture Wizard** from the **Dimensions RM** menu. As shown in the **Capture Type** page of the wizard, the first decision you must make is whether you will be doing paragraph based or content based capture. Paragraph based capture treats each paragraph to be captured as a potential object. Content based capture searches for words or phrases to identify potential objects. If you choose content based capture, you will later have to specify the "content" to search for, and whether the entire paragraph surrounding the "content" is to be captured or just the sentence containing it is to be captured. Select **Paragraph Based** or **Content Based**. Click **Next** to continue.

Figure 6-24. Batch Capture Wizard–Capture Type Page

4 Select **Entire Document** to have batch capture identify potential objects throughout the document or **Selection** to operate only on the text you have selected. If you have not yet selected text, you can do so at this time. Click **Next** to continue.

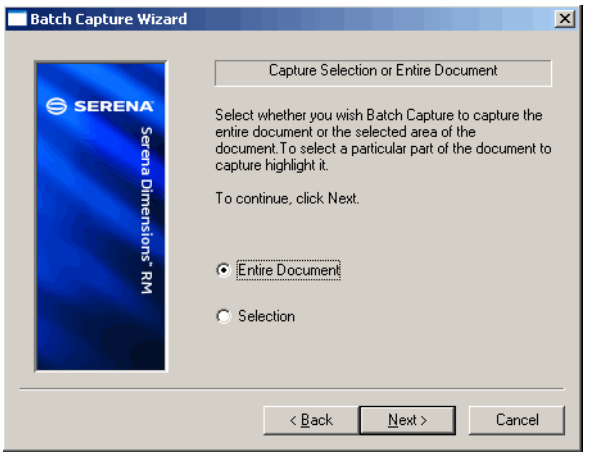

Figure 6-25. Batch Capture Wizard–Capture Selection or Entire Document

5 Select **All Paragraphs** to capture paragraphs of any style or **Paragraph Bodies** to capture just body text.

NOTE In RM Word, the term *Paragraph Bodies* refers to any style that is not one of the Header styles. If you select **All Paragraphs**, even the paragraph headers are treated as potential objects. If you select **Paragraph Bodies**, the headings and their numbers will not be treated as potential objects, but could be captured as attributes for the paragraph bodies (that is, the paragraph number is usually captured into a paragraph ID and the paragraph header is usually captured into a title).

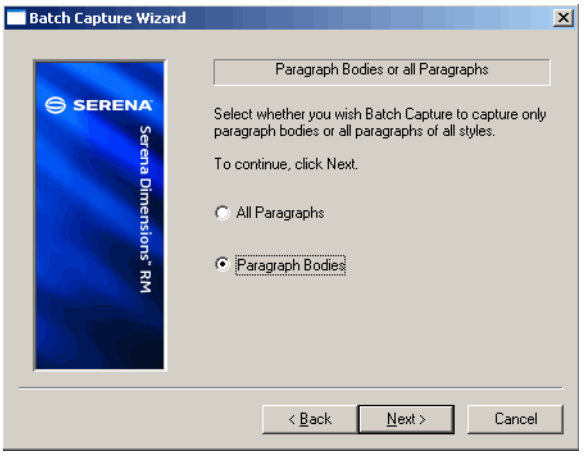

Figure 6-26. Batch Capture Wizard–Paragraph Bodies or All Paragraphs

6 If you chose **Content Based** capture in Step 3, you must now decide how much of the surrounding context to capture with the "content". Select **Sentence** to capture

paragraph to capture just the surrounding sentence, or **Paragraph** to capture a fuller context. Click **Next** to continue.

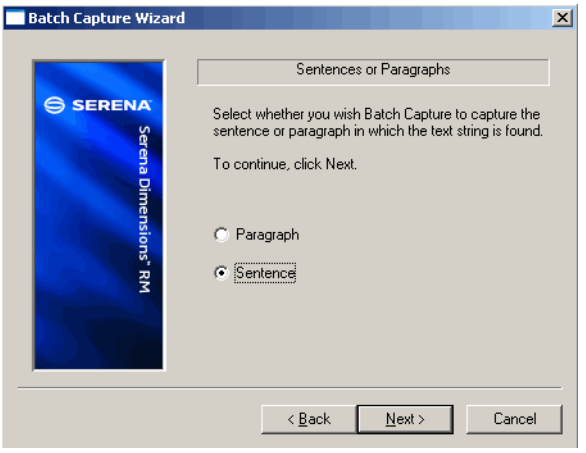

Figure 6-27. Batch Capture Wizard–Sentences or Paragraphs

7 If you chose **Content Based** capture in Step 3, you must now supply the exact string (no wildcards or pattern specifications are accepted) for which to search. A check box at the bottom of the **Search String** page is provided so you can specify whether the search is case-sensitive. Click **Next** to continue.

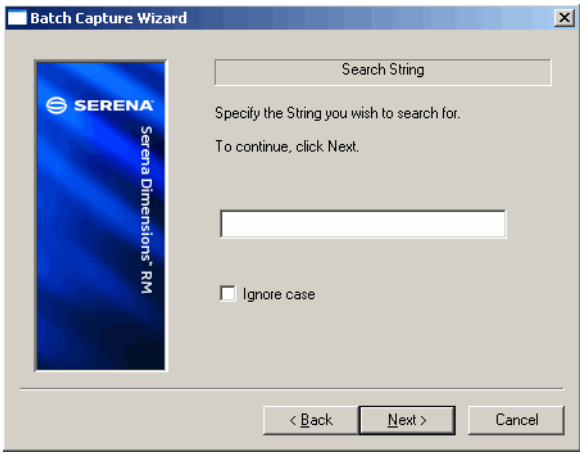

Figure 6-28. Batch Capture Wizard–Search String

8 On the **Select Class** page, choose the class into which you will be capturing objects. A dropdown list provides class names. The target text attribute, where the captured text will be stored, is displayed in a non-editable box. To change it as well as other capture preferences, click the **Preferences** button near the bottom of the **Select**

Class page. This will display the standard capture preferences dialog. After you have reviewed or modified your preferences, Click **Next** to continue.

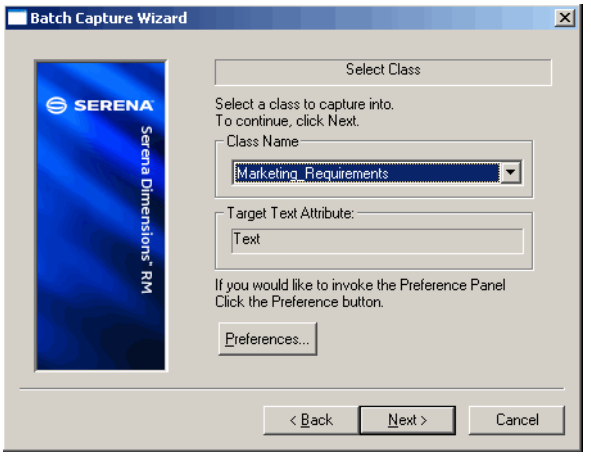

Figure 6-29. Batch Capture Wizard–Select Class

9 The **Default Values** page displays the list of user-defined attributes for your capture class. You can provide default values for any of these attributes so that, if they are not actually captured they will be set to a known value. For most attributes, this is an optional step, but some attributes may have been designated as mandatory and not given default values in your class definition. If so, these will be marked with a special symbol to the left of the attribute name. Default values for these mandatory attributes must be provided at this point. Enter values for all un-defaulted mandatory attributes. Click **Next** to continue.

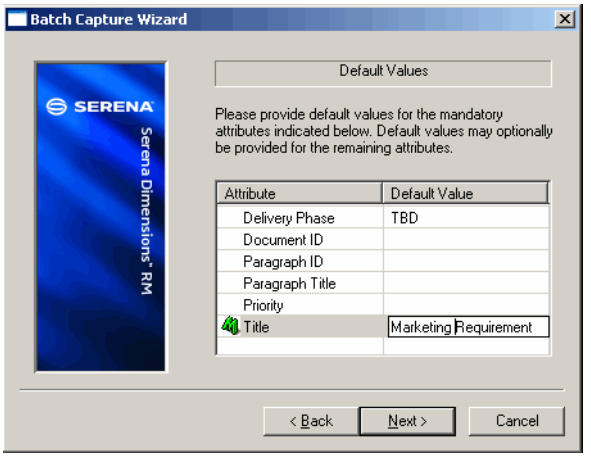

Figure 6-30. Batch Capture Wizard–Default Values

10 Review the **Batch Capture Summary** page to ensure that you have entered your choices accurately. Click **Finish** to start the first phase of the batch capture process in which potential objects will be located in the document. These results will be presented to you as dry run results in the second phase of the batch capture process, described in "Dry Run" on page 234.

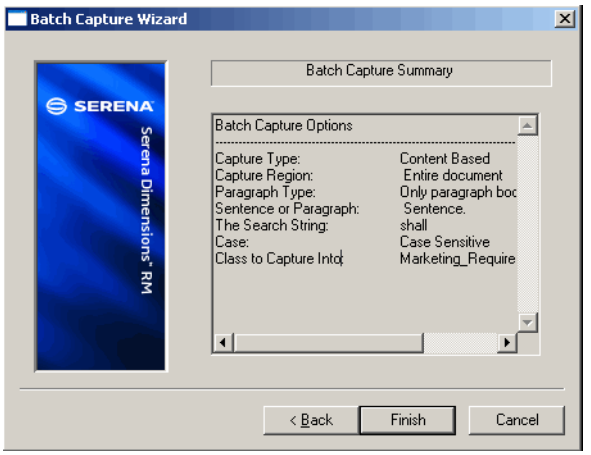

Figure 6-31. Batch Capture Wizard–Batch Capture Summary

Using the Batch Capture Expert Dialog

The **Batch Capture Expert** dialog provides a one-page alternative to the **Batch Capture Wizard**.

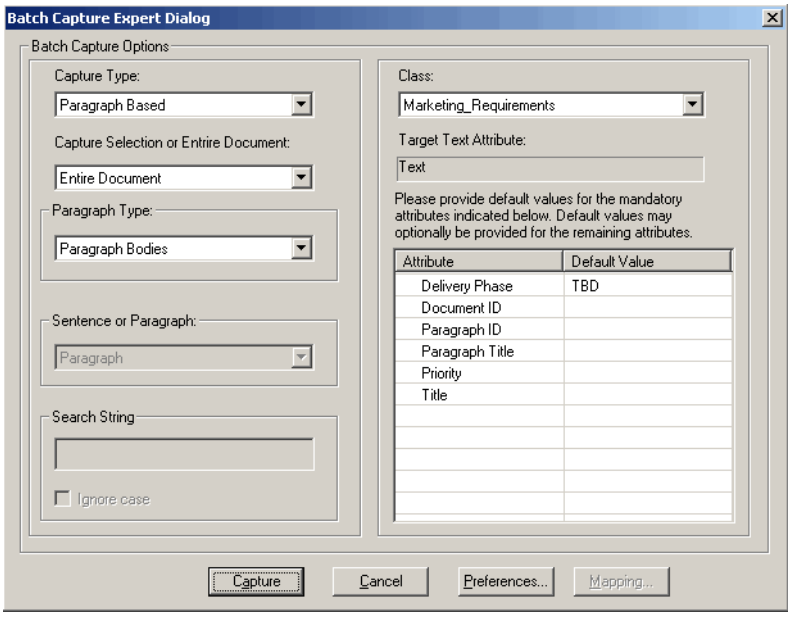

Figure 6-32. Batch Capture Expert Dialog

Following is a description of the fields in the dialog.

Capture Type—The choices are **Paragraph Based** or **Content Based**. Paragraph based capture treats each paragraph to be captured as a potential object. Content based capture searches for words or phrases to identify potential objects. If you choose content based capture, you will later have to specify the "content" to search for, and whether the entire paragraph surrounding the "content" is to be captured or just the sentence containing it is to be captured.

Capture Selection or **Entire Document**—Select **Entire Document** to have batch capture identify potential objects throughout the document or **Selection** to operate only on the text you have selected. If you have not yet selected text, you can do so at this time.

Paragraph Type—Select **All Paragraphs** to capture paragraphs of any style or Paragraph Bodies to capture just body text.

NOTE In RM Word, the term *Paragraph Bodies* refers to any style that is not one of the Header styles. If you select **All Paragraphs**, even the paragraph headers are treated as potential objects. If you select **Paragraph Bodies**, the headings and their numbers will not be treated as potential objects, but could be captured as attributes for the paragraph bodies (that is, the paragraph number is usually captured into a paragraph ID and the paragraph header is usually captured into a title).

Sentence or Paragraph—This is enabled only when you have chosen content based capture as the **Capture Type** option above. Select **Sentence** to capture paragraph to capture just the surrounding sentence, **Paragraph** to capture a fuller context.

Search String—This is enabled only when you have chosen content based capture as the **Capture Type** option above. Type the exact string (no wildcards or pattern specifications are accepted) for which to search.

Ignore case—This is enabled only when you have chosen content based capture as the **Capture Type** option above. Check this to make searches case-insensitive.

Class—Choose the class into which you will be capturing objects. A dropdown list provides the class names. The target text attribute, where the captured text will be stored, is displayed in a non-editable box. To change it as well as other capture preferences, click the **Preferences** button at the bottom of the dialog. This will display the standard capture preferences dialog described in "Setting Your Capture Preferences" on page 227.

Default attributes—The list of user-defined attributes for your capture class is displayed at the bottom right of the dialog. You can provide default values for any of these attributes so that, if they are not actually captured they will be set to a known value. For most attributes, this is an optional step, but some attributes may have been designated as mandatory and not given default values in your class definition. If so, these will be marked with a special symbol to the left of the attribute name. Default values for these mandatory attributes must be provided at this point. Enter values for all un-defaulted mandatory attributes or to override default values provided in the class definition.

Following is a description of the buttons on the dialog:

- **Capture**—Click **Capture** to start the batch capture process.
- **Cancel**—Click **Cancel** to dismiss the dialog.
- **Preferences**—Click **Preferences** to display the standard capture preferences dialog described in "Setting Capture Preferences" on page 215.

Dry Run

The dry run review is the second phase of batch capture. Whether you use the wizard or the expert dialog, batch capture identifies the potential objects according to your specifications and displays the results in the **Dry Run Summary** dialog. In this dialog, you can review the potential objects, confirm them individually or as a group, cancel the

capture, or even save the capture in a partially reviewed state so that you can return to it later.

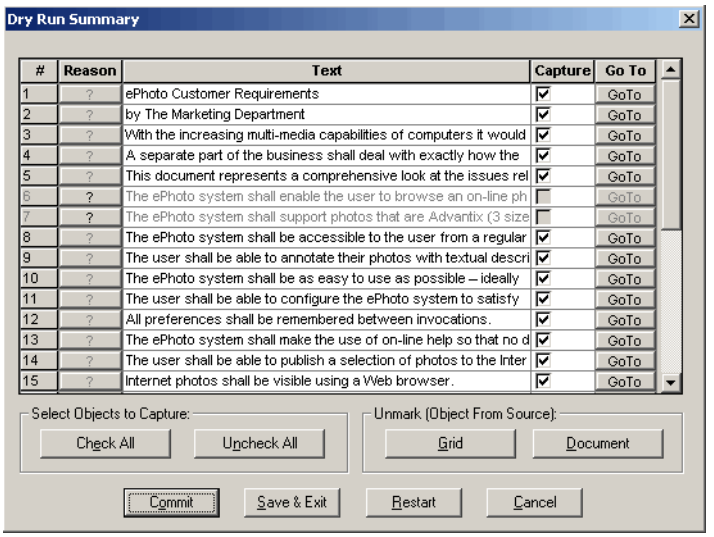

Figure 6-33. Dry Run Summary

At the top of the summary dialog, each potential object is presented in a grid. The columns are as follows:

#—Provides a row number for convenience.

Reason—If enabled, the potential object cannot be captured. Click the icon in the **Reason** cell to popup a dialog that provides a reason for a potential object being actually uncapturable. Reasons for failure to capture include: the object is already captured (if you have batch captured an entire document that already contained some captured objects, those previously captured objects cannot be captured a second time) or access control problems (you will be prevented from capturing if you do not have access to some attribute that would be affected by the capture).

Text—The target text attribute content as it will be captured

Capture—A check box that, if selected, confirms the capture for that potential object. If not selected, the capture will be skipped.

Go To—A button that, if clicked, will reposition the document at that potential object in context.

Below the potential object grid, the summary dialog contains three groups of buttons:

- **Select Objects to Capture**
  - **Check All**—Sets the **Capture** check box for all enabled (capturable) rows to checked.
  - **Uncheck All**—Sets the **Capture** check box for all enabled (capturable) rows to unchecked.
- **Unmark (Object from Source)**—Provides two ways to discard potential objects from the capture.
  - **Grid**—Permanently discards the selected (select the row number to select the potential object) potential object from the capture.

- **Document**—Permanently discards the selected potential object (select the bookmarked text in the document window to designate the potential object that you want to discard) from the capture.

- **Unlabeled Operations**
  - **Commit**—Completes the capture of confirmed potential objects.
  - **Save & Exit**—Saves the dry run in its current state and exits the dry run review. You can restart it by selecting **Batch Capture** dialog from the **Dimensions RM** menu. If you exit the document and open it again later, you will have to continue the dry run review after the document is synchronized with the database. When you return to the document, dry run objects are colored in the dry run color designated in the **Preferences** dialog (refer to "Setting Capture Preferences" on page 215 for details).
  - **Restart**—Re-runs the first phase of batch capture to produce a new dry run summary.
  - **Cancel**—Exits the dry run review and discards the batch capture results.

Table Capture

While you can always manually capture a table cell, you cannot manually capture more than one table cell at a time. The **Table Capture Wizard** can, however, capture whole tables in two different ways. For tables organized such that each row represents an item with associated information in the columns, the wizard can capture each row into an object, filling in attributes from the columns. For tables organized such that each cell represents an item and there are no implied connections between adjacent cells, the wizard can capture each cell into a separate object. To use the wizard, follow the steps below:

1. To start the wizard, position the cursor in any cell of the table and select **Table Capture** from the **Dimensions RM** menu. In the **Capture Type** page, choose the type of table capture. Select **Row Map** if each row of the table should be captured into a single object with the values in the columns being stored in the object's attributes. Select **Cell** if each cell in the table should be handled as a separate object (in this case, only one attribute can be captured from the cell content).

   Click **Next** to continue.

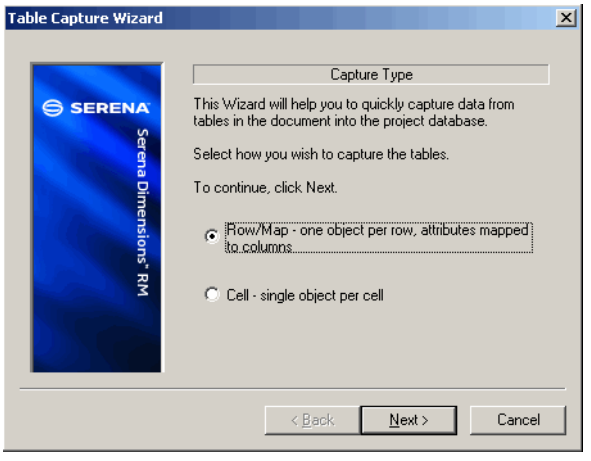

Figure 6-34. Table Capture Wizard–Capture Type

2 In the **Table Heading** page, select the check box if the first row of the table is to be ignored as table heading text. Clear the check box to capture the first row of the table as well as all others. Click **Next** to continue.

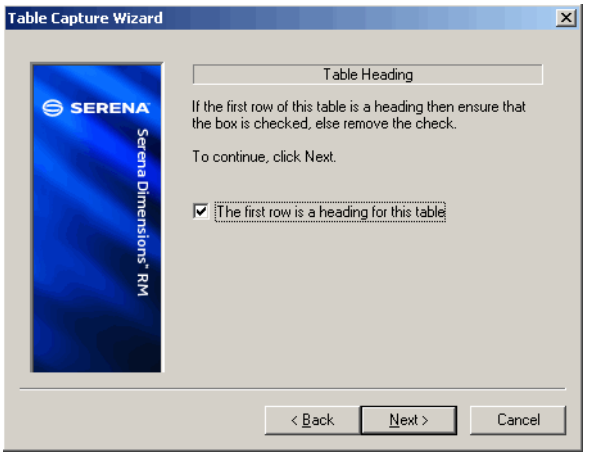

Figure 6-35. Table Capture Wizard–Table Heading

3 If you are capturing by cell, skip to Step 6.

4 If you are capturing by row, the **Map Table Columns to Attributes** page informs you that the following page will prompt you for a mapping between your table columns and object attributes. Click **Next** to continue.

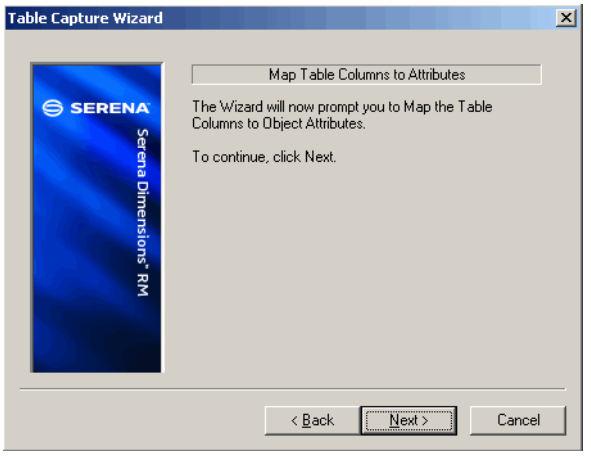

Figure 6-36. Table Capture Wizard–Map Table Columns to Attributes

5 To map your table columns object attributes, select the class from the list at the left of the page. Choose a column heading and an attribute name and click **Map**. The mapping will appear in the text box near the bottom of the page. To undo a mapping, select the mapping in the text box and Click the **Unmap** button. Repeat mapping steps as needed to complete the attributes that you want to capture. If you don't map a heading to an attribute, that column will be ignored in the capture. If the class into which you are capturing has mandatory attributes without default values, and if you do not map a column to each of these attributes, you will have to provide those mandatory values. The object editor dialog will be displayed so that you can provide

values for the mandatory attributes (see "Attribute Panel" on page 239 for details on the **Object Editor** dialog. Click **OK** to continue.

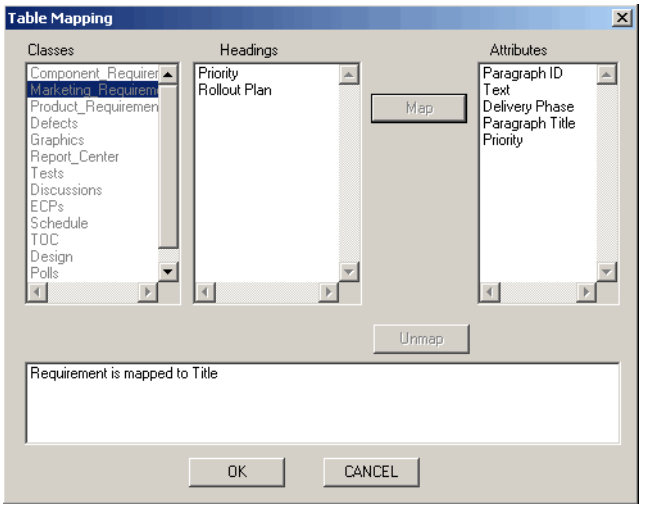

Figure 6-37. Table Mapping Dialog

6 If you are capturing by cell, the **Capture Table** page informs you that the wizard can now proceed. Click **Capture** to continue.

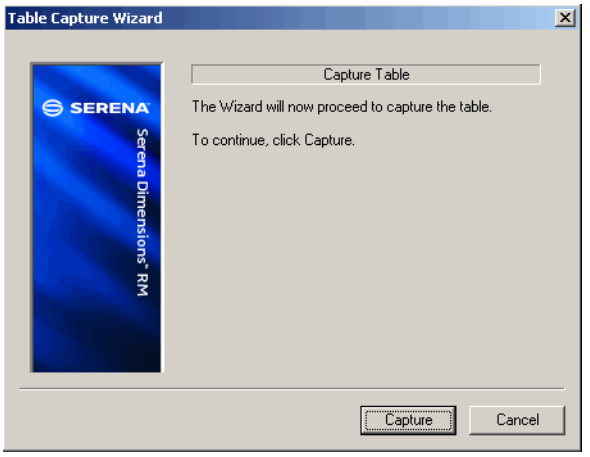

Figure 6-38. Table Capture Wizard–Capture Table

When table capture completes, a log gives you details on what has been done. Click **Save As** to save the log to a file for later reference. Click **Cancel** to dismiss the log file display.

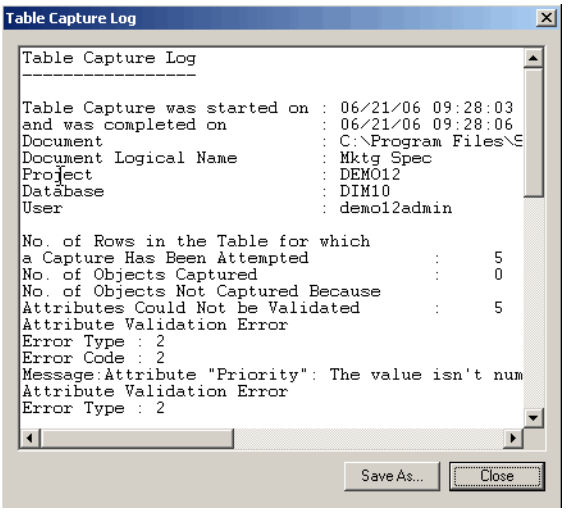

Figure 6-39. Table Capture Log

Editing Captured Objects

This section describes how to edit captured objects.

Attribute Panel

To access the Attribute Panel:

- Position the cursor within an object and select **Edit Object** on the **Dimensions RM** menu or click **Edit Object** on the **Dimensions RM** toolbar.

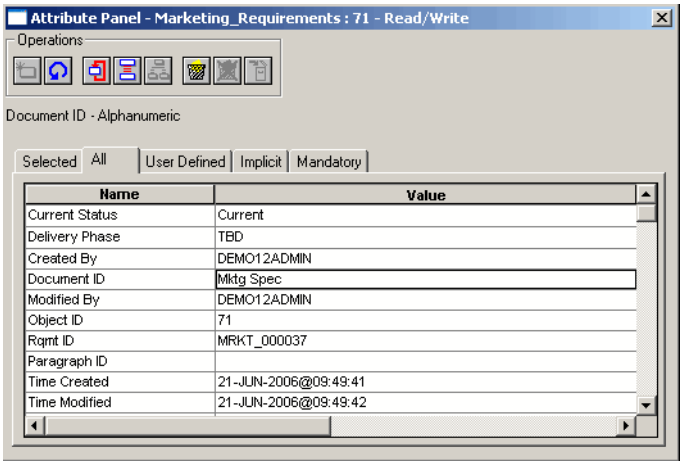

Figure 6-40. Attribute Panel

Figure 6-41. Dimensions RM Toolbar

The operations that can be performed with the Attribute Panel are listed as follows: Capture Object, Update, Replace, Edit, Delete, Undelete and Remove. Attributes are divided into different groups, with some attributes appearing in more than one group.

NOTE The only operation that is available on a baselined object is Replace.

Tabs are used to select which set of attributes and their values are displayed:

- **All**–All the attributes that exist for an object of a particular class.
- **User Defined**–Attributes defined by the user.
- **Implicit**–Attributes basic to every class.
- **Mandatory**–Attributes that must be completed for an object of a particular class.

To edit an attribute, double-click the field in the Attribute Panel and edit the text if it is a text field, or select from the list if it is a list field. To enter the value into the Attribute Panel, click another field value. Select **Update** or **Replace**. If changes are made to the attributes and **Delete** or **Undelete** is selected, the attribute changes will not be saved. To save them, if the object is going to be deleted, select **Update** and then delete the object. If the object is going to be undeleted, undelete the object, make the changes, and select **Update**.

Status and help information is displayed as you edit the attributes and perform operations. Information about the object itself (for example, the object ID and the read/write status) can be found in the title bar of the Attribute Panel. Another object can be displayed in the Attribute Panel while it is running by positioning the cursor in the document within the text of the object and selecting **Edit Object** from the menu or by clicking the **Edit Object** button.

Deleting and Undeleting an Object

To delete an object from the Attribute Panel:

1. Position the insertion point within the text of the object that you want to delete. (When undeleting, the object will be marked as deleted).
2. Select **Edit Object** from the **Dimensions RM** menu or click **Edit Object** on the **Dimensions RM** toolbar. The **Attribute Panel** dialog opens.

3 To delete an object, select **Delete**. This marks the object as deleted in the database and updates the color of the object in the document to reflect its new status. The object will also have a strikethrough mark to show that it is deleted.

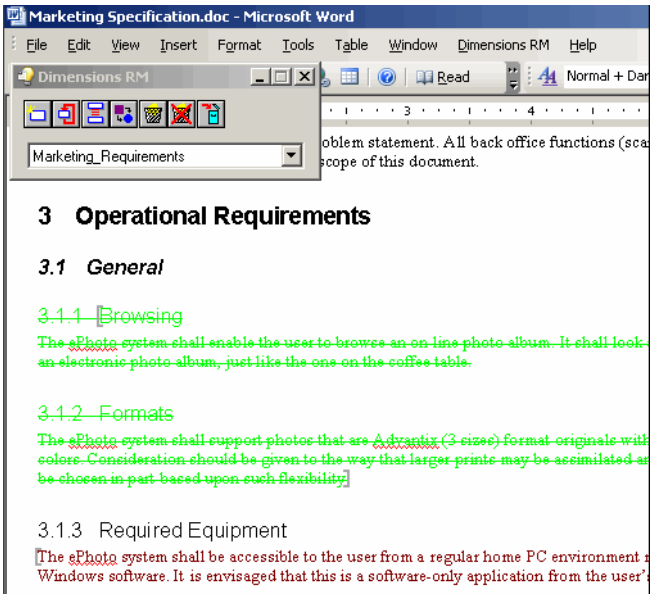

Figure 6-42. Deleted Object Marker

To delete an object directly from the document:

1 Position the insertion point within the object that you want to delete.

2 Select **Delete Object** on the **Dimensions RM** menu or click **Delete Object** on the **Dimensions RM** toolbar.

This marks the object as deleted in the database and change the object's color in the document. The object will have a strikethrough mark to show that it is deleted.

To undelete an object:

- Do one of the following:
  - Select **Undelete**. The database will be updated and the color of the object will change in the document to reflect its new status. The strikethrough mark will also be removed.
  - Position the insertion point within the text of the object to be undeleted. (The object should be marked as deleted.) Select **Undelete Object** on the **Dimensions RM** menu or click **Undelete Object** on the **Dimensions RM** toolbar.

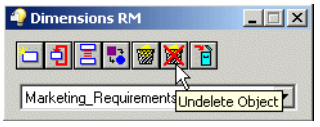

Figure 6-43. Dimensions RM Toolbar

This will undelete the object in the database, change the object's color in the document and remove the strikethrough mark.

Removing, Replacing and Updating an Object

To open the Object Editor:

1. Position the insertion point within the text of an object.
2. Select **Edit Object** from the **Dimensions RM** menu or click **Edit Object** on the **Dimensions RM** toolbar. This displays the Object Editor.

To remove an object:

- Click **Remove**.

  You can remove an object through the document. Position the cursor within the object you want to remove and select **Remove Object** on the **Dimensions RM** menu or click **Remove Object** on the **Dimensions RM** toolbar. Remove "uncaptures" the object from the project database, but does not delete the text from the document. If a parent object exists in the project database for the removed object, the removed object's text is replaced with the parent object's text in the document.

To replace an object:

- Click **Replace**.

  An object may also be replaced by selecting **Replace Object** on the **Dimensions RM** menu or by clicking **Replace Object** on the **Dimensions RM** toolbar while the cursor is positioned within a Dimensions RM object in the document. This form of Replace should be used when the object text has been changed within the document. The replacement is stored in the database.

To update an object:

- Select **Update**.

  An object may also be updated through the document. Make the necessary changes to the text of the Dimensions RM object in the document and select **Update Object** on the **Dimensions RM** menu or the **Dimensions RM** toolbar while the cursor is positioned within the object. The changes made will be stored in the database.

NOTE You can perform bulk update, remove or replace operations to change many object attributes by selecting **Synchronize** on the **Dimensions RM** menu.

Adding Comments

To add comments:

1. Place the cursor within the selected object.
2. Select **Comment** from the **Dimensions RM** menu.
3. Select the required role.
4. Enter comment text.

5 Click the **Comment** button.

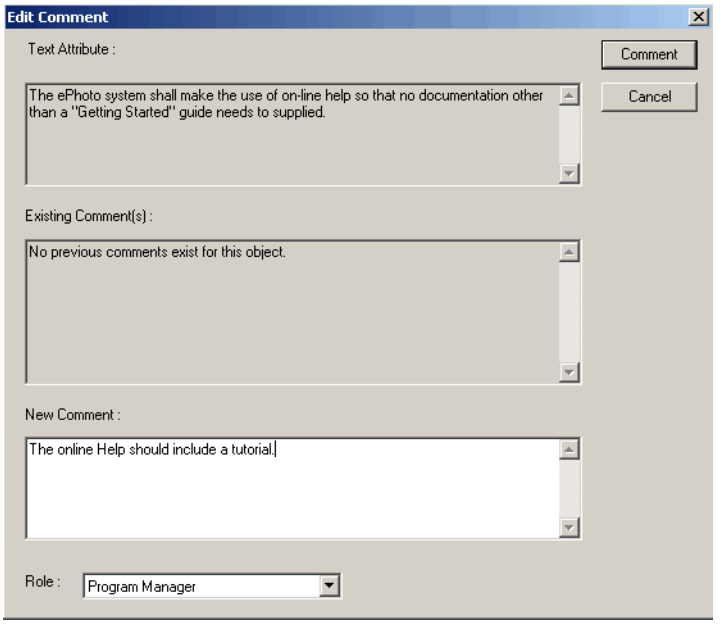

Figure 6-44. Comment

Importing Objects and Other Data from the RM Database

RM Word provides two mechanisms for importing data from the project database into documents: attribute insertion and the import wizard. Attribute insertion is the process of bringing additional attributes belonging to captured objects into the document where they can be viewed and edited. You can insert object attributes at the same time that you capture text. You can also insert attributes for imported objects. The import wizard imports objects from the database as new document content. Imported content can be either "Dimensions RM aware" or not. Dimensions RM-aware content behaves just like captured content once it has been imported. Non-Dimensions RM-aware content is just text. When you have imported objects as new Dimensions RM-aware document content, you can also insert additional attributes using the attribute insertion mechanism.

Using Attribute Insertion

The ability to assign attributes to project database objects is one of the main reasons for capturing text from documents into objects. Once the text is in an object of a suitably defined class, you can assign useful information such as priority, cost, or ownership to the object. This enriches the object with project-relevant information, and is especially useful when you do not control the content or format of the original documents. With attribute insertion, you can add and remove attribute values to the document as needed for different review or presentation purposes. Combining attribute insertion with the use of the import wizard or script output in RM Word formats, you can create whole new documents using objects from the database.

Adding Inserted Attributes

To add an inserted attribute:

1. On the floating engineering toolbar, choose the class of object from which you will be inserting attribute values.

2. Select **Display Attributes** from the **Dimensions RM** menu. The **Display Attribute** dialog opens.

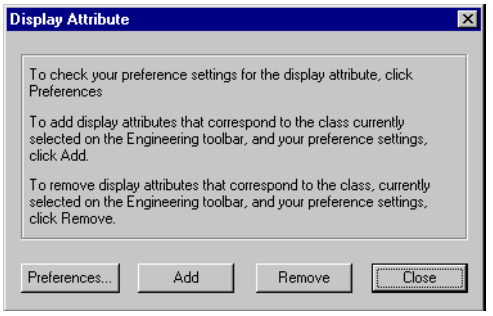

Figure 6-45. Display Attribute Dialog

3. To specify an attribute for insertion, click the **Preferences** button at the bottom of the dialog. This displays the **Insertion Attribute** tab of the **Preferences** dialog.

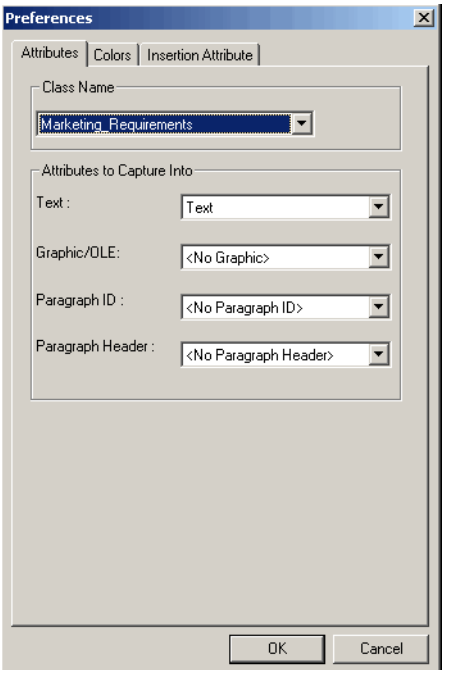

Figure 6-46. Preferences Dialog - Insertion Attribute Tab

4. To establish your insertion preferences:

   a On the **Insertion Attribute** tab, the **Class Name** dropdown should be set to the same class that you chose in Step 1.

   b Select an attribute from the dropdown list under **Attribute to insert into document upon capture**.

   c (Optional) Choose a character style for presenting attribute under **Character style to apply to Attribute**. The character style list is the one already available in your document.

d Choose a position for the inserted attribute under **Position Relative to Captured Attribute**. Use the options in the column labeled **For Text:** to place attributes into document text paragraphs. Use the options in the column labeled **For a Table** if you are inserting attributes into table cells.

e Click **OK** to save your preferences and return to the **Display Attribute** dialog.

5 To insert the attribute values for the attribute last selected in your insertion preferences, click the **Add** button. RM Word places the inserted attribute at the position requested for all object instances of the selected class that appear in your document.

Notes:

- Your attribute insertion preferences are not saved for each class, attribute combination that you edit in the **Preferences** dialog. Only your last set of changes is stored in the **Preferences** dialog. You can reuse the last settings to remove inserted attributes or to insert the same attribute on objects created or imported following your initial insertion. When reusing attribute insertion preferences, be sure that the class selected in the floating toolbar matches the class on which you want to operate. Otherwise, you could accidentally remove inserted attributes from another class.
- If multiple sentences are captured in a paragraph, inserting attributes before or after the text adds each attribute in separate paragraphs before or after the paragraph containing the multiple objects (sentences). If sentence capture is desired, left/right positioning is probably most effective.
- Each attribute is inserted immediately before/after or left/right. If multiple captured objects are in the same paragraph, the ordering of attributes may not match the order of the captured objects. Removing and adding the attributes fixes the problem.

Removing Inserted Attributes

To remove inserted attributes:

1 On the floating toolbar, choose the class of object from which you will be removing inserted attribute values.

2 Select **Display Attributes** from the **Dimensions RM** menu. The **Display Attribute** dialog opens (Figure 6-45).

3 Click the **Preferences** button at the bottom of the dialog. This displays the **Insertion Attribute** tab of the **Preferences** dialog (Figure 6-46). Check your attribute selection (under **Attribute to insert into document upon capture**) to be sure that it names the one you want to remove.

4 When you have ensured that the attribute name is the one you want removed, click **OK** to dismiss the dialog.

5 Click the **Remove** button at the bottom of the **Display Attribute** dialog to remove the inserted attribute values. Click **Cancel** to dismiss the dialog without removing attribute values.

Using the Import Wizard

The import facility allows objects held in the Dimensions RM project database, which are not already present in the Word document, to be imported into the document. This allows you to build a document containing all the objects you want to work with, or to insert

several new objects into the document that were created in the project database. Any data held in the project database that has a status of *Current* or *Deleted* can be imported into the Word document. You can import objects in the form of a table or as paragraphs. You can also choose to import paragraph numbers and heading text.

The object text attributes may be imported as Dimensions RM-aware objects or as plain text. Objects may be imported into individual cells, or you may map table columns to object attributes. Use the **RTM Import Objects Wizard** to import data into the document from the project database.

There are three paths through the wizard:

- Text only import is the simplest path. This path imports object text into simple paragraphs in the document. These imported objects are "[Product Name Short No Marks]-aware" in that, once they have been imported into the document, they behave as if they had been captured from the document.
- Table import into single cells creates a one-column table in your document. Each cell of the table is the text of an object. These objects are "[Product Name Short No Marks]-aware" in that, once they have been imported into the document, they behave as if they had been captured from the document.
- Table import into rows creates a multi-column table in which each row corresponds to an object and you define a mapping from object attributes to table columns. You can choose make the objects from this kind of import [Product Name Short No Marks]-aware if you want.

To import objects from the project database:

1. Check your capture preferences. If you want to import paragraph numbers and heading text as well as object text, you must map these to object attributes in the **Preferences** dialog.
2. Position your cursor at the point in the document at which you want to import the objects.
3. Select **Import Objects from RM** from the **Dimensions RM** menu. A Welcome page is displayed. Click **Next** to continue.

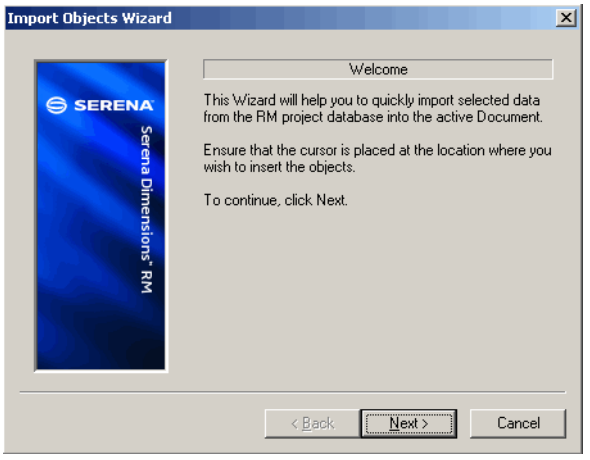

Figure 6-47. Import Objects Wizard–Welcome Screen

4. The **Import as Individual Attributes or into a Table** page opens. To continue with the text only import, click the **Next** button and skip to Step 5.

To import a set of objects into a table, select **Import into Table**. If you want the imported objects in a series of table cells, select **Import each object into a cell** and specify the number of columns desired. Click the **Next** button and skip to Step 5.

If you want the imported objects as well as other attributes, such as Current Status or PUID, to appear in a series of rows, select **Import each object into a row**. Select the **Import as RM Aware Objects** check box to have the imported text appear as captured text. Leave the box unchecked to have the imported text appear as plain text. Click the **Next** button to continue.

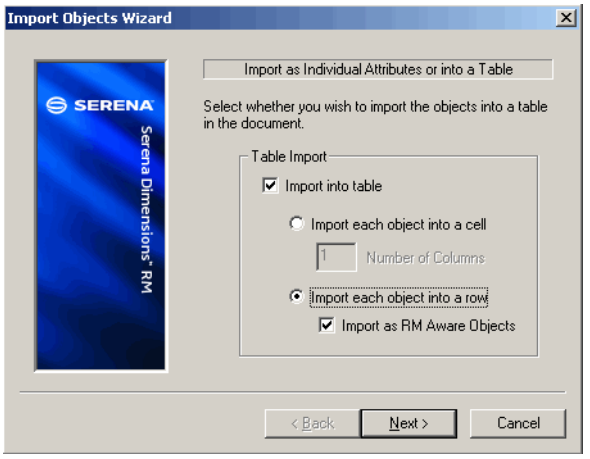

Figure 6-48. Import Wizard–Import as Individual Attributes or into a Table

The next wizard page is for text import into rows only. There are three lists shown in the dialog: **Classes**, **Attributes**, and an unlabeled box that will hold your attribute to column mappings. Choose a class from the list at the left. For each attribute that you want included in your table, select the attribute and click the **Map** button. A mapping will appear in the bottom, unlabeled box. The attributes are mapped to columns in order of your selection. To remove a mapping, select it from the bottom box and click the **Unmap** button. When you have completed your list of mappings, click the **Next** button and skip to Step 8.

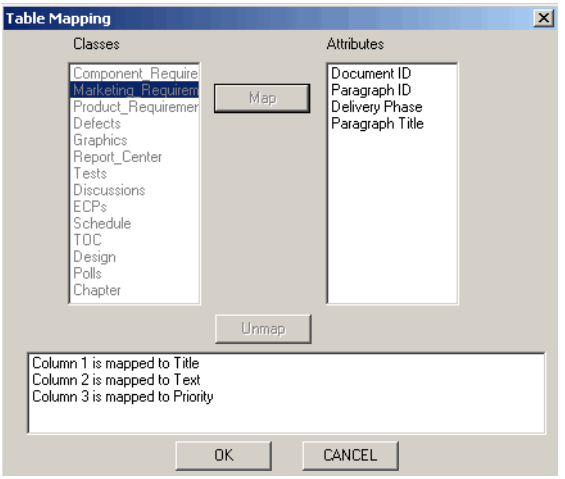

Figure 6-49. Import Wizard–Mapping Attributes to Columns

5 From the **Select Class** page, choose a class from the list of available classes by left clicking on the class name. Click **Next** to continue. If you are importing into table cells, skip to Step 7.

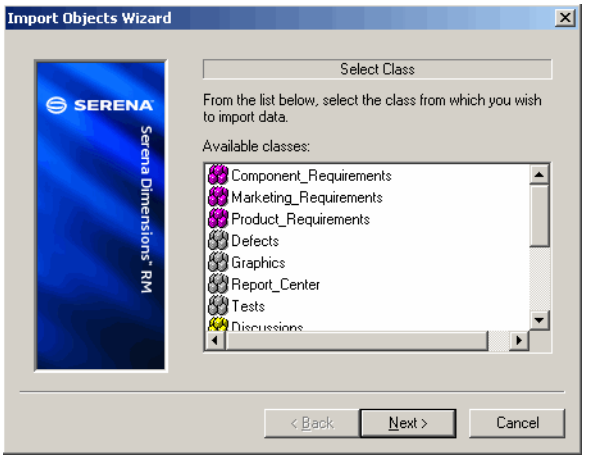

Figure 6-50. Import Wizard–Select Class

6 The **Select Type of Attribute to Import** page is only applicable to non-table imports. If the class you chose in the previous step has a Graphic/OLE attribute, you will be able to choose whether to import either the text or the Graphic/OLE attribute. Click **Text**, and then click **Next** to continue.

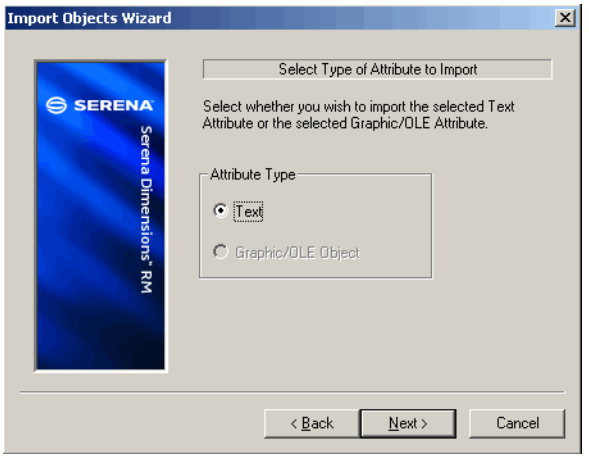

Figure 6-51. Import Objects Wizard - Select Type of Attribute to Import

7 The **Select Paragraph Heading** page allows you to choose to include paragraph numbers and titles, which may have been captured previously. Select the **Import any additional attributes** check box to include the paragraph numbers and titles. Click **Next** to continue.

NOTE Paragraph IDs and headers are not imported as Dimensions RM attributes. Paragraph numbers are imported as manually numbered (that is, not automatically numbered).

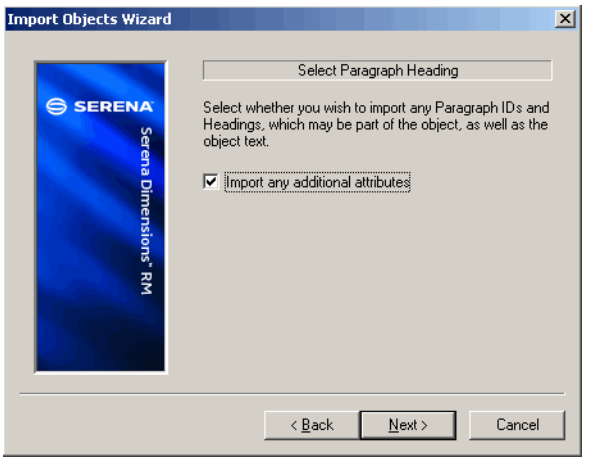

Figure 6-52. Import Objects Wizard–Select Paragraph Heading

8 The **Object Selection** page informs you that you will be specifying the objects to be imported through a set of selection criteria to be constructed in the next page. Click **Next** to continue.

9 On the **Object Selection** dialog, you can specify object selection criteria in terms of linked collections and attribute values. The **Order By** dropdown list allows you to select an attribute by which to sort the imported results. Choose a combination of collections using the collection names and logical operators. Specify attribute values in the list in the lower half of the dialog. To select all current objects of the class, do not enter any selection criteria. When you are satisfied with your selection criteria, click **OK** to continue.

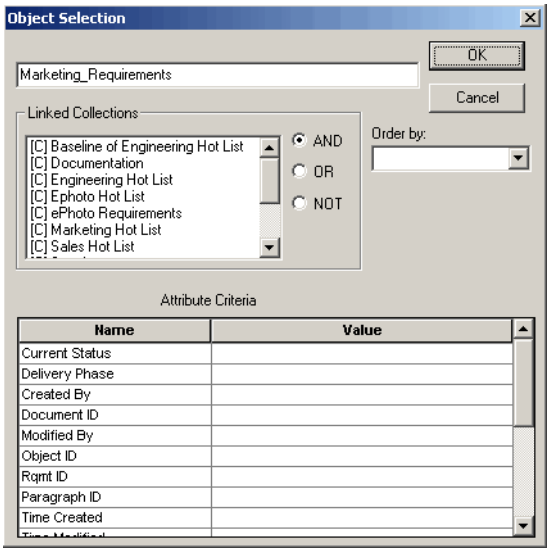

Figure 6-53. Import Wizard - Object Selection Dialog

10 The final page of the import wizard, **Data Transfer**, informs you that the import can now proceed. Click **Next** to continue.

Chapter 7

Command Line Tools

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Overview

Serena® Dimensions® RM provides doc_out as the command line tool. doc_out allows you to run scripts from the DOS prompt. The command line tool can be run when you want to create large reports on links among entities created in or removed from the database.

Setting Your Path

doc_out is normally installed in *RTM_HOME\bin*. This directory must be in your path for the tools to be visible. Check with your project administrator for the location in your installation. Alternatively, you can search for the tool (*doc_out.exe*) using the **Search** command from the Windows **Start** menu.

To add the Dimensions RM bin directory to your path:

1. Right-click the **My Computer** icon on your desktop.
2. Select **Properties**.
3. Click the **Environment** tab.
4. Select the Path variable from the system variables list.
5. In the **Value** box at the bottom of the page, insert the Dimensions RM bin path into the value string. Separate that path from the next one with a semi-colon (;).
6. Click **Set**, **Apply**, and then **OK**.

Using doc_out

The doc_out tool allows you to run a Dimensions RM reporting script from the command line and to generate the output to a variety of formats. Using doc_out enables you to extract data from Dimensions RM without invoking a Windows-based Dimensions RM session. Scripts can be prepared before extraction for batch processing of reports.

Invoking doc_out

To invoke the doc_out tool:

Type the following command at the command line prompt:

```
doc_out   required_arguments   [optional_arguments]
script_identification
```

where:

`required_arguments` are:

```
-user username -pwd password -project projectname -location dblocation
```

- `username` is your Dimensions RM user account name.
- `password` is your Dimensions RM user account password.
- `projectname` is the project from which you want to extract data.
- `dblocation` is the database name in which the project resides. Your local *tnsnames.ora* file contains the database names of each database to which you have visibility.

`optional_arguments` are:

```
[-m format] [-#variablename value]* [-o outputfile] [-e] [-v] [-s[n|u
terminatorstring]
```

- `format`–The format in which you want the output to be represented. The accepted formats are described in the following table.

Format	Description
csv	Comma Separated Values format
rtf	Rich text format used by Microsoft Word
rtf_table	Rich text table format
sgml	SGML markup format
sgml_table	SGML table format
html	HTML format
html_table	HTML table format
none	No markup (that is, plain ASCII)
ascii_table	ASCII text with spacing to create a tabular effect. **NOTE:** This is the default output format.

- `variablename` is the name of a variable defined in the script and **value** is the actual value that you want substituted for that variable. See "Script Syntax" on page 404 for script variable definition syntax. You will need to define **- #variablename value** pairs for each variable defined in the script.
- `outputfile` is the filename or path in which the results are to be stored. Enclose the path in double quotation marks when spaces or punctuation characters are included in the filename.
- `-e` suppresses word processor markup at the beginning of the outputfile (not accepted for RTF or SGML formats). Omitting markup is useful when you will be appending the output to an existing file.
- `-v` requests program arguments be echoed to the console or DOS window.
- `-s` (used only with the -m none option) with no argument causes a standard end-of-record marker ("`#### End of Record ####`") to be appended to each record in the report.
- `-su` (used only with the -m none option) terminatorstring provides a textual end-of-record marker for the -su option. Enclose terminatorstring in double quotation marks when spaces or punctuation characters are included the string.
- `-sn` (used only with the -m none option) eliminates blank lines in the unformatted output. Blank lines are otherwise inserted for empty attribute values. -sn can be used in combination with -su, but overrides -s.

`script_identification` is:

`scriptfilename | -n scriptname`

- `scriptfilename` is the path of the script stored in the file system. You can save scripts in RM Concept as `.rmdoc` format.
- `-n scriptname` identifies a script stored in the project. Scriptname is required with the -n option. If the script name in the project includes blanks or punctuation characters, you will need to enclose the name in double quotes (for example, `-n “my favorite script”`).

Using doc_out from the Command Line

Various ways to use the doc_out tool from the command line are illustrated in the following DOS examples.

Example 1

Minimum arguments. Assumes that doc_out is in the path, the script text is in the current folder, and the results are to be displayed on the screen. The output format defaults to ascii_table.

```
C:\>doc_out -user fred -pwd fredspassword
-project myproject -location bigserver.ic
getCustomerRequirements.rmdoc
```

Example 2

Similar to Example 1, but references a script inside the project and an output file in the current folder in which to save the results.

```
C:\>doc_out -user fred -pwd fredspassword
-project myproject -location bigserver.ic
-n “Get Customer Requirements” -o CustomerRequirements.txt
```

Example 3

Similar to Example 2, but requests the output in a csv file that can then be imported into other tools.

```
C:\>doc_out -user fred -pwd fredspassword -project
myproject -location bigserver.ic -n “Get Customer
Requirements” -m CSV
-o CustomerRequirements.csv
```

Example 4

Similar to example 2, but specifies no markup and uses the date as a record separator.

```
C:\>doc_out -user fred -pwd fredspassword -project
myproject -location bigserver.ic -n “Get Customer
Requirements” -m none -su “09/15/2000”
-o CustomerRequirements.txt
```

Example 5

Similar to Example 3, but uses a variable to specify a collection that identifies a subset of the objects

```
C:\>doc_out -user fred -pwd fredspassword -project myproject
-location bigserver.ic -#LookIn Baseline1 -n “Get
Customer Requirements” -m CSV -o CustomerRequirements.csv
```

Using Script Variables with doc_out

Variables can be used within a Dimensions RM reporting scripts only when the script is run by doc_out. Attempting to use them in RM Concept or RM Browser results in erroneous results because the variable values are substituted in doc_out before submitting the script to Dimensions RM.

To use variables in scripts, follow these rules:

- Use UPPER CASE for the variable name in both the script and the command line reference.
- Enclose spaces or punctuation in values in double quotation marks.
- In the command line, precede the variable name with a ‘#’, but in the script, include the variable name without any special markings.

The following example is a parameterized version of the baseline check script provided in the RMDEMO sample project. The script identifies three subsets of objects given two collections used as baselines. The first subset is (the first select statement) the set of objects in the earlier baseline that are not deleted and are still in the later baseline (as identified by the second select statement). The second subset is those objects that are in the later baseline, but were not in the earlier baseline. The third subset is those objects that were in the earlier baseline and were deleted.

```
select  <PUID>PUID <Earlier>TEXT from CustomerRequirements where
group in ('EARLY') and STATUS != 'Deleted'
xref source secondary_history
select  <PUID>PUID <Later Modifications>TEXT from
CustomerRequirements where group in ('LATE')
plus
select  <PUID>PUID <Later Additions>TEXT from CustomerRequirements
where group in ('LATE')  and group not in  ('EARLY')  and
NOT_SECONDARY_IN immediate
plus
select  <PUID>PUID <Earlier Deletions>TEXT from
CustomerRequirements where group in ('EARLY') and STATUS='Deleted'
```

The baseline check script is invoked to compare Baseline 1 and Baseline 2 from the DOS command line as:

```
C:\>doc_out -user fred -pwd fredspassword -project rmdemo
-location bigserver.ic baselinecheck.rmdoc -#EARLY
“Baseline 1” -#LATE “Baseline 2”
```

Appendix B

RM Explorer Icons and Toolbars

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RM Explorer Icons

The following table describes the icons used in RM Explorer.

Icon	Description
	Database
	Project
	Closed Folder
	Open Folder
	Comment Class
	Generic Class
	Requirement Class
	ECP Class
	Child Collection
	Locked Child Collection
	Parent Collection
	Locked Parent Collection
	ASCII Document
	Locked ASCII Document
	Word Document
	Locked Word Document
	Class Form
	Relationship Form
	Pending Action
	Relationship
	Script
	Object
	Document Object
	Locked Object
	CM Locked Object
	User
	Group

RM Explorer Toolbars

The following sections describes the toolbars that are part of RM Explorer.

Main Toolbar

The following table describes the buttons on the main toolbar in RM Explorer.

Button	Action
	Cut the selection and put it on the Clipboard
	Copy the selection and put it on the Clipboard
	Insert Clipboard contents
	Print the active document
	List Help topics
	Switch to large icon view
	Switch to small icon view
	Switch to list view
	Switch to report view

Tools Toolbar

The following table describes the button on the Tools toolbar in RM Explorer.

Button	Action
	RM Concept
	RM Manage
	Class Definition
	RM Word
	RM Capture
	CSV Import
	Batch Update
	Auto Link

Database Toolbar

The following table describes the buttons on the Database toolbar in RM Explorer.

Button	Action
	Change user
	Change user password
	Properties

Project Toolbar

The following table describes the buttons on the Project toolbar in RM Explorer.

Button	Action
	View project schema
	Properties
	Administer locks

Class Toolbar

The following table describes the buttons on the Class toolbar in RM Explorer.

Button	Action
	Open
	Open in grid
	Open with class form
	Open with grid layout
	Define filters
	Import CSV data
	Batch update data
	Security
	Show properties
	Administer locks

Collection Toolbar

The following table describes the buttons on the Collection toolbar in RM Explorer.

Button	Action
	Open collection
	Open graphically
	Toggle linkability
	Modify link rules
	Auto link
	Create alias
	Delete
	Rename
	Security
	Properties
	Administer locks
	Open source

Document Toolbar

The following table describes the buttons on the Document toolbar in RM Explorer.

Button	Action
	Open
	Delete
	Security
	Properties
	Administer locks

Class Form Toolbar

The following table describes the buttons on the Class Form toolbar in RM Explorer.

Button	Action
	Open
	Edit
	Delete
	Rename
	Security
	Properties
	Administer locks

Relationship Form Toolbar

The following table describes the buttons on the Relationship Form toolbar in RM Explorer.

Button	Action
	Open
	Delete
	Rename
	Security
	Properties
	Administer locks

Pending Action Toolbar

The following table describes the buttons on the Pending Action toolbar in RM Explorer.

Button	Action
	Open
	Properties
	Administer locks

Relationship Toolbar

The following table describes the buttons on the Relationship toolbar in RM Explorer.

Button	Action
	Open
	Open with relationship form
	Import CSV data
	Auto link
	Security
	Properties
	Administer locks

Script Toolbar

The following table describes the buttons on the Script toolbar in RM Explorer.

Button	Action
	Open
	Edit
	Delete
	Rename
	Security
	Properties
	Administer locks

Class Object Toolbar

The following table describes the buttons on the Class Object toolbar in RM Explorer.

Button	Action
	Open
	Open graphically
	View source document
	Add comment

Button	Action
	Properties
	Administer locks

Document Object Toolbar

The following table describes the buttons on the Document Object toolbar in RM Explorer.

Button	Action
	Open
	Open graphically
	View source document
	Add comment
	Properties
	Administer locks

File New Toolbar

The following table describes the buttons on the File toolbar in RM Explorer.

Button	Action
	New pending action
	New script
	New ASCII document
	New Word document
	New collection
	New form
	New object
	E-mail registration

Lock Manager Toolbar

The following table describes the button on the Lock Manager toolbar in RM Explorer.

Button	Action
	Administer locks

Appendix C

RM Concept Toolbars

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Relationship Toolbar	269
Script Toolbar	270

Main Toolbar

The following table describes the buttons on the main toolbar in RM Concept.

Button	Action
	New form
	New collection
	Open
	Print
	New object
	Update object
	Replace object
	Delete object
	Clear data
	Find
	Lock for edit
	Change request
	Request new object
	Add to collection
	Remove from collection
	E-mail registration
	Display attribute description
	List Help topics

Change Toolbar

The following table describes the buttons on the Change toolbar in RM Concept.

Button	Action
	Accept change request
	Reject change request

Control Toolbar

The following table describes the buttons on the Control toolbar in RM Concept.

Button	Action
	Add text to form
	Add line to form
	Add rectangle to form
	Add circle to form
	Add static frame to form
	Add image to form

Focus Toolbar

The following table describes the buttons on the Focus toolbar in RM Concept.

Button	Action
	Add to focus list
	Remove from focus list
	Commit a focus

Relationship Toolbar

The following table describes the buttons on the Relationship toolbar in RM Concept.

Button	Action
	Link
	Break link
	Create and link
	Edit attributes
	Swap view

Script Toolbar

The following table describes the buttons on the Script toolbar in RM Concept.

Button	Action
	New script
	Edit script
	Load script
	Run script
	Save script

Glossary

Accept A command that accepts a proposed change. The current status of the proposed requirement becomes "accepted," and a copy of the requirement is created with the Current Status of "current."

accepted Current Status of a change request that was accepted.

access rights The set of tasks that can be performed on a resource by a user.

action attribute A pointer to a file that is held internal or external to Dimensions RM, and indicates the method of accessing the file.

alias A set of keywords defined as variants or synonyms of a main keyword. For example, aliases of the keyword "calibrate" might be "calibrated," "calibrating," or even the wild card string "cal*". Unlike pseudonyms, which exist only while a particular Dimensions RM tool is active, aliases exist for the duration of the project or until they are deleted.

alphanumeric attribute An attribute that represents one line of alphanumeric text, such as the title of an acceptance test. It can be up to 1000 characters in length.

alphabetic sort A simple alphabetical sort. Contrast with *numeric sort*.

attribute Information that is logically associated with a class of information to further specify the information content. See also *class attribute*, *evaluated attribute*, *implicit attribute*, *relationship attribute*, *user-defined attribute*.

attribute constraint A rule that permits a link to be created only if some attribute of the primary or secondary object obeys a specific constraint. See also *primary object*.

attribute type The nature or data type of an attribute: alphanumeric string, free text field, and date.

audit trail An historical trace of the various versions of requirements that lets you reconstruct requirement evolution. The Visual Network tool lets you view the audit trail graphically.

auto link A utility that lets you create or break links between objects of the primary and secondary class in the selected relationship.

baseline A stable, unchangeable group of requirements. Baselining a collection ensures that the collection will never change.

batch capture A method of capturing objects that is performed using the batch capture utility in RM Word. This method is particularly suitable for capturing requirements from large and structured documents. See also *manual capture*.

batch update A utility that lets you change attribute values for all requirements that match a set of attribute constraints for any one class defined in the project schema.

capture The process of capturing an object when it is extracted from the original source document and entered in the Dimensions RM database. See also *source document*.

category A method for organizing objects so you can create views of requirements, scripts, and filters for a subset of users. A requirement can belong to only one category.

cardinality rule A rule that specifies the maximum number of links that can lead to and from primary or secondary objects. For example, a cardinality of 2:3 means that no more than two links can lead to a secondary object, and no more than three to the primary object.

change request A proposal to change one or more requirement attributes.

child collection Object hierarchies are created from the top down, from parent to child, while collection hierarchies are created in the opposite direction, by grouping child collections to form a parent collection, and so on. A child collection may be directly linked to an object. When a collection is created, it is a child collection by default.

child database Used in the context of database partitioning only. Contrast with *parent database*.

child object Whenever an object is edited and replaced, a new object is produced. The original object is called the parent object, and the new object is its child object. If this process is repeated, a child can itself be a parent of another child.

class A container for related types of information. After classes are defined, requirements are entered or captured into the class.

class attribute A property of a class, as defined by the project administrator, that further breaks down the information in the class. By specifying attributes for a class, the project administrator can define the exact nature of the information represented by the class. This allows Dimensions RM users to make complex searches on their project information. Without defined attributes, classes model information at only a relatively high level of abstraction and lack internal detail. In such cases, the resulting diagram simply shows an overview of the abstract data types pertaining to the project, together with their interdependencies.

class definition The initial Dimensions RM information modeling procedure the project administrator uses to configure Dimensions RM with respect to the information to be generated and traced within the project. This is represented graphically as a class definition diagram.

class definition diagram A graphical representation of the information classes that exist in a project, along with the relationships between the classes.

Class Definition A Dimensions RM tool that lets users with special privileges (such as project administrators) define various classes of information, attributes of those classes, and the relationships between the classes. By specifying the project structure in this way, a class definition both constrains and supports the systems engineer in the way that instances of classes, attributes and relationships can be created during the lifetime of the project. Systems engineers and other ordinary users can use Class Definition to view the class definition diagram for the project. See also *class definition diagram*.

CM Lock Configuration Management Lock. A security feature that makes objects read-only and stops them from being updated. You can lock requirements, collections, and documents.

collection A way to group requirements of any class. Once a collection is created, it can be associated with a requirement by linking the requirement to the collection. Each requirement can be linked to many different collections, and each collection can be linked to many different requirements. Parent collections contain child collections. Child collections contain requirements. Parent collections are not directly linked to any requirements, only linked indirectly through their child collections. See also *baseline*.

collection linkability An occurrence of the association defined by a relationship. It connects two objects.

command line tools Dimensions RM tools (doc_out) that let you to run scripts from the DOS prompt. Doc_out lets you run a Dimensions RM reporting script to generate output to a variety of formats. With doc_tool, you can prepare scripts before extraction for batch processing of reports.

compliance check A process in which Dimensions RM searches the database and produces a report specifying which objects do not contain links across a defined relationship.

compliance report A report that lists requirements that are or are not linked to objects in the other class in a relationship. A full compliance report lists all requirements in the primary and secondary class, whether or not they are linked to each other. A compliance-only report lists either all matching requirements in the primary class that have links to matching requirements in the secondary class, or all matching requirements in the secondary class that have links to matching requirements in the primary class. A non-compliance report lists either all matching requirements in the primary class that have no links to matching requirements in the secondary class, or all matching requirements in the secondary class that have no links to matching requirements in the primary class.

CSV import A utility that lets you import data from a comma separated value file into the Dimensions RM project database.

current Current Status of a requirement that is the most recent or current version.

Current Status A special implicit attribute that identifies the state of a requirement.

cyclic relationship Relationship in which the relationship points from one class back to the same class.

database In the Dimensions RM environment, an instance of Oracle. The databases that are displayed in the Dimensions RM tools are determined by the contents of the `tnsnames.ora` file (an Oracle file).

database partitioning The division of project data between a contractor and subcontractors. This is used for large projects undertaken by several groups or organizations. The original objects are retained in the main contractor's parent database, and allocated objects in the subcontractor's child database.

date attribute A user-defined attribute type that stores values that are based on user-defined date formats.

Delete A command that changes the Current Status of a requirement to "deleted," but leaves the requirement in the project.

deleted Current Status of a requirement that was deleted. A deleted requirement remains in the project. The prior version of the requirement, if any, receives a status of "current."

derivation The analysis process in which an object is changed or translated into a form suitable for lower-level analysis and design.

derived object A lower-level object that is necessary for the implementation of a higher-level object. When an object changes form, it becomes a derived object. In general, a derived object is directed toward some sub-element and is more specific than the original object.

Dimensions RM A suite of multi-user, configurable tools that support the capture, management, traceability and documentation of systems engineering information.

Dimensions RM project administrator The person responsible for maintaining the data that is accessible to a particular project. This includes using the Class Definition tool to implement the information model and, in some cases, the Database Management Utility to manage project information.

Dimensions RM third-party integrator Person responsible for using the API functions to integrate third-party tools with Dimensions RM.

doc_out A command line tool that lets you run a reporting script and generate the output to a variety of formats.

Doctool A Dimensions RM tool that interprets a documentation script and generates an on-screen report.

document In the Documents View perspective in RM Browser, a hierarchical arrangement of chapters and requirements that can be edited. You can create a document from within Documents View or open one that was imported by the RM Import tool. From Documents View, you can publish a document as a Microsoft Word document.

Documents View An RM Browser view that provides a document-like presentation of requirements, with a table of contents, chapters, and subchapters. Requirements are contained within the chapters and subchapters. Document View allows you to easily add, delete, move, and edit chapters and requirements. Microsoft Word documents that you imported through RM Import are displayed in Document View. You can easily add, delete, move, and edit chapters and requirements from the imported Word document in Document View. See also *Requirements View*, *Home View*, *Traceability View*.

ECP Engineering Change Proposal. A class type. As you create a set of related proposed requirements, you can link them to an ECP object so that they are easily accessible for review as a group.

e-mail notification A feature that lets you register interest in certain types of changes within the project data and to receive electronic notices of those changes.

evaluated attribute An attribute that takes its value from the external environment. Such an attribute can be specified as the default value for alphanumeric, numeric or date attributes. At run time, the specified script or command is executed and the resulting value is set for the attribute.

expanding A process in which a single parent object is edited to produce one or more child objects.

export utility A utility that can be used to back up a project or database. In the context of database partitioning, it generates a data partition package containing all the data and external files associated with a data partition. The package can be created as a collection of files in a single directory or as a single file, ready for transfer to the destination site.

file attachment attribute A user-defined attribute type that holds a single file that can be accessed through RM Browser

filter A query against a single class. Form filters are the simplest kind of filter, but they are limited in terms of the complexity of the selection criteria. Complex filters provide greater expressive power for the selection criteria. With complex filters, you can construct detailed logical expressions that use attribute values, ranges of attribute values, and membership in relationships as selection criteria. Contrast with *script*.

flowdown A systematic process in which objects are decomposed into allocated and derived objects, and then assigned to low-level model components. This flowdown process generates a hierarchical structure of refined objects derived from the objects captured for the system.

focusing A process in which two or more parent objects are edited to produce a single child object.

form A structure that displays requirement information for classes and relationships. A form is created for each class and relationship. You can create new forms by customizing the form that Dimensions RM generates, and can designate any form to be used as the default form.

form view In RM Browser and RM Concept, a view that displays requirements one at a time. From the form view in RM Browser and RM Concept, you can edit requirement attributes. From the form view in RM Concept, you can also find objects.

genealogical links Links between parent objects and child objects, or between parent collections and child collections.

generic links Links that must span a relationship.

graphic attribute A user-defined attribute type that holds either graphic images or OLE data captured from RM Word. See also *OLE*.

grid view In RM Browser and RM Concept, a view that lets you view multiple requirements in a table-like list. The column headings represent attributes of the requirements.

group A collection of individual users grouped into a functional category. Access rights can be assigned to a group and all members of the group. If users have been assigned to a project through a group, they inherit the group access rights, unless they have been explicitly granted or denied access.

Home View An RM Browser view that you can customize to include up to seven expandable sections. Each section contains the results of a query. RM Home allows you to quickly view and modify requirements that you refer to on a regular basis. See also *Documents View*, *Requirements View*, *Traceability View*.

immediate child The object that was created when the original object was replaced, focused, or expanded. Immediate children are the next version of objects in the line of descent and may be current objects or objects with another status.

immediate parent The object that was used to create the currently selected object. Parent objects never have a status of "current."

immediate relationship A relationship that refers to the immediate predecessor or successor of an object. Contrast with *source relationship*.

implicit attribute An attribute that is used to maintain the integrity of project information. Implicit attributes include intrinsic information such as the project unique identifiers (PUIDs), object IDs, and modification times. You cannot modify implicit attributes. Implicit attributes are supplied for each class and relationship. Contrast with *user-defined attribute*.

import utility A utility that can be used to restore a project or database from backup.

lifecycle The phases of a project from its initial requirements specification through its implementation.

link An instance of a relationship. You can link two requirements together if a relationship between their corresponding classes is defined.

list attribute A user-defined attribute type that provides a list of values from which the Dimensions RM user can make a selection. For example, if you require the Dimensions RM user to choose one of a given set of values for the attribute *test_result*, specify the attribute as a list attribute, and define *pass*, *fail*, and *untested* as the set of allowed values.

lock manager A Dimensions RM tool used to lock and unlock Dimensions RM database elements such as source documents, tools, objects, and collections.

lowest level child A current object that is descended from the selected object. The objects contained in the lowest-level children list may skip generations of an object; that is, they need not be immediate children of the selected object.

mandatory attribute An attribute for which users must specify values. Contrast with *optional attribute*.

manual capture A method of capturing objects one at a time using the RM Capture tool. This method is particularly suitable for capturing objects from documents that are short or not formally structured. Contrast with *batch capture*.

NOT_PRIMARY_IN A relationship operator that is used to identify requirements that can be at the origin of a link, but do not.

NOT_SECONDARY_IN A relationship operator that is used to identify requirements that can be at the termination of a link, but do not.

numeric attribute A user-defined attribute type that holds numeric values, such as reference numbers. The numbers can include decimal points.

numeric sort A method of sorting that is used for alphanumeric attributes such as paragraph numbers in outlines. For example, with a numeric sort, the numbers (10, 20, 1, and 2) are sorted as (1, 2, 10, 20) instead of (1, 10, 2, 20). Contrast with *alphabetic sort*.

object Synonymous with *requirement*.

Object Editor A Dimensions RM dialog used to modify attributes and edit, focus, and expand class information.

OLE Object Linking and Embedding. A technology for transferring and sharing information among applications.

optional attribute An attribute for which you can use the default values or leave blank. Contrast with *mandatory attribute*.

ORACLE_HOME The logical pathname of the file system or network location of your Oracle installation.

parent collection A collection that links child collections. Parent collections cannot be linked directly to an object.

parent database A database at a main contractor's site used to hold the project's original objects. Used in the context of database partitioning only. Contrast with *child database*.

parent object An original object that produces a new object when the original object is edited. The original object is called the immediate parent object, and the new object is its immediate child object. If this process is repeated, a child object can itself be a parent object of another child object. In this way, the original parent object can spawn multiple levels of descendants, including both immediate child objects and lowest-level child objects. One or more parent objects can produce one or more child objects.

pending change request A change request that has not yet been accepted or rejected. A pending change request has a Current Status of "proposed."

polling A feature of RM Browser that lets you solicit feedback about a requirement from selected users. Polls are typically used to decide whether a specific requirement should be accepted, or to reach consensus concerning the content of a requirement.

primary class The first class in a direct relationship between two classes. For example, in the relationship *Is_Tested_By* that connects class *Code_Module* and class *Acceptance_Tests*, *Code_Module* is the primary class, *Is_Tested_By* is the relationship, and *Acceptance_Tests* is the secondary class. The direction of the relationship arrow is always from the primary to the secondary class in the class definition diagram. This direction and positioning on the diagram defines the direction of the relationship. Contrast with *secondary class*.

PRIMARY_IN A relationship operator that is used to identify requirements that are at the origin of a link.

primary object An instance of a primary class to which objects are linked.

project A Dimensions RM work area where information is created and maintained.

proposed Current Status of a requirement for which a change request has been made to either change the current requirement or create a new requirement.

pseudonym Text pattern used to locate objects to be linked to a collection. For example, pseudonyms of the keyword "calibrate" might be "calibrated," "calibrating," or even the wildcarded string "cal*". Unlike aliases, which exist for the duration of the project or until they are deleted, pseudonyms exist only during the linking process. See also *alias*.

PUID Project Unique Identifier. An intrinsic attribute.

query A filter or script, expressed in terms of the project schema, that you use to retrieve selected requirements.

quick search A feature of the Requirements View in RM Browser that lets you quickly create a query to see the content of any category.

Reject A command that rejects a proposed change. The Current Status of the proposed requirement becomes "rejected," and a copy of the requirement is created with the Current Status of "current."

rejected Current Status of a change request that has been rejected.

relationship An association between two classes. It is also an entity in its own right, in terms of having its own attributes and associated user access rights. See also *link*.

relationship attribute A property of a relationship, such as its cardinality and its inheritance characteristics. Relationship attributes, defined by the Project Administrator, can control how traceability is established across different relationships. Project Administrators can specify that links be created between two objects according to the value of one or more of the class attributes. For example, it can be specified that links can be created from a change request object to a requirement object only if the value of the change request object's attribute APPROVAL_STATUS is APPROVED. See also *cardinality rule*.

relationship rule Circumstances under which links between objects will be permitted. See also *cardinality rule*.

Remove A command that physically removes a requirement from a project. Only requirements with a status of "current" can be removed.

Replace A command that creates a new version of a requirement with the changes you made. The Current Status of the original requirement is changed from current to replaced, a parent-child link is created from the original requirement to the new requirement, and the current status of the new requirement is set to current.

replaced Current Status of a requirement that has been replaced by a newer version.

resource category A grouping of resources into a class of items. For example, a unique document name falls into the category of Documents. Resource categories are important when assigning default permissions because defaults are assigned to entire class of resources rather than an individual resource. Resource categories are also important when assigning appropriate transaction for a class of resources. Certain transactions are appropriate only for certain categories of resources.

requirement An instance of a class. A description of a set of conditions applicable to a product or process; this description must be capable of being validated for success. A requirement object is satisfied by a product or process if a test reveals that the described conditions are met by the product or process. Synonymous with object.

Requirements View An RM Browser view that lets you view and modify requirements that are organized by category. From this view, you can run an existing filter, run an existing script, run a quick search to create a new query, and add queries that you access frequently to a favorites folder. See also *Documents View*, *Home View*, *Traceability View*.

RM Browser A Dimensions RM tool that provides Web access to a core set of Dimensions RM functions.

RM Capture A Dimensions RM tool that lets users extract objects from ASCII documents and pass them to the Dimensions RM database, where they can be analyzed and engineered as required.

RM Concept A Dimensions RM tool that tracks the requirements engineering and change processes. In RM Concept, you can capture requirements both manually and automatically, and can customize views for reporting and information gathering. To support change management, RM Concept manages requirements, reports changes, generates customized reports, and compares versions. You can run multiple instances of RM Concept simultaneously. RM Concept provides locking at the data level.

RM Explorer A Dimensions RM tool that provides an integrated Windows Explorer-like view of a project, so you can see and organize an entire project at once, not just one element at a time. RM Explorer provides a single interface for starting other Dimensions RM tools. You do not have to log in to the other tools from RM Explorer; however, if you start other tools from outside of Dimensions RM, you have to log in to each one individually.

You can use RM Explorer to manage and organize all the elements and source files of your project. RM Explorer lets you see the hierarchy of classes, collections, documents, files, and folders in your project. You can import and update data with RM Explorer, and view the attributes of all the components of your project. You can also use RM Explorer to create custom views and filters.

RM Import A Dimensions RM tool that lets you preview a Microsoft Word document as a draft document, change the description of chapters, reorganize the chapters, change the values of attributes, move attributes between chapters, and so on. When satisfied with the draft document, you can import the document into Dimensions RM as a document that can be viewed and modified in the Document View of RM Browser.

RM Import Designer A Dimensions RM tool that lets administrators design templates that users select when importing Word documents from RM Import. Templates define how to identify classes, attributes, chapters, requirements, and categories.

RM Manage A Dimensions RM tool that lets project administrators define users and groups, administer project security, configure the project database, organize data, and control user access and data routing.

RM Word A Dimensions RM tool that lets you capture, delete, and edit data directly from Microsoft Word. In RM Word, you can register documents in the database and synchronize requirements in a document with requirements in the database.

RTM_HOME A logical name for the file system location of Dimensions RM programs and data.

schema diagram See *class definition diagram*.

script A query against one or more classes. Scripts are the most comprehensive way to perform searches. They can be used to combine the selection criteria capabilities provided by complex filters, with complex link traversal, parameterization, basic calculations, and output formats. Contrast with *filter.*

script generator wizard A Dimensions RM wizard that provides a graphical interface allowing the user to specify the contents of a given report.

secondary class An object class that is the destination of the relationship arrow from a primary class in a class definition diagram. The relationship arrow points to the secondary class. Contrast with *primary class*.

SECONDARY_IN A relationship operator that is used to identify requirements that are at the termination of a link.

snapshot In the Document View of RM Browser, a read-only baseline of a document.

source document A document, typically provided by the customer, which is input to the system being developed. A source document can also be written in Dimensions RM by using an empty document and inserting objects.

source parent The original object that was either captured from a document or input into the system. Source parent objects never have a "current" status.

source relationship A relationship that refers to the original object in a chain of versions. Contrast with *immediate relationship*.

suspect link A link that becomes questionable after one of the requirements in the link changes. The change could render other requirements questionable, or "suspect."

tablespace A logical storage unit. Your project data is physically stored in one or more data files associated with a tablespace. Initially, only one file is associated with the tablespace, but you can add more files as you need them. The size of a tablespace is determined by the size of the data file or combined data files that make up the tablespace.

template A set of rules defined by an administrator in RM Import Designer that determines how a document will be imported into Dimensions RM using the RM Import tool.

text attribute A user-defined attribute type that holds up to 64 KB of alphanumeric, ASCII text that can span more than one line. It is suitable for long descriptions, such as the description of an acceptance test.

transactions Actions associated with a category of resources that represent what can be done with that resource. For example, an update transaction is associated with a class definition. A user that has the update transaction for a particular class definition can change characteristics of that class definition and store them in the database.

traceability The process of making explicit links between requirements and other entities. Traceability lets you trace the evolution of a project.

Traceability View An RM Browser view that provides a way to select the relationships you want to trace, with requirements limited to selected baselines, documents, collections, or categories; browse through the requirements that are part of the relationships; and then print traceability reports that display the information in a visual format that is easy to analyze. See also *Documents View*, *Home View*, *Requirements View*

type A definition of the basic properties of a set of instances of a class, relationship, or attribute.

Undelete A command that changes a the Current Status of a requirement from "deleted" to "current."

Update A command that overwrites the content of the requirement without maintaining a record of what was changed. This option is not recommended if you need to maintain a history, or audit trail, of changes to requirements over time. All other attributes, including Current Status, remain intact.

user An individual responsible for performing basic information management tasks, such as capturing objects, including generic and CASE tool data in the Dimensions RM database, creating traceability links among requirements and other data, engineering and categorizing objects, and producing reports. An individual Dimensions RM user.

user-defined attribute An attribute that you can create for use in a specific class. See also *action attribute*, *alphanumeric attribute*, *date attribute*, *file attachment attribute*, *graphic attribute*,*list attribute*, *numeric attribute*, *text attribute*. Contrast with *implicit attribute*.