

Getting Started with Rational Suite™ AnalystStudio™

VERSION: 2001.03.00

PART NUMBER: 800-023723-000

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Rational®
the e-development company™

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Printed in the U.S.A.

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Welcome to Rational Suite AnalystStudio

1

What is AnalystStudio?

The task of analyzing your company's business, system, or marketing challenges and defining systems and applications that can effectively address these challenges is an extraordinarily complex undertaking. Careful problem analysis is key to understanding real-world problems and users' needs. A thorough and understandable system definition maps your road to meeting those needs.

Unlike any other solution in the industry, Rational Suite AnalystStudio is a suite of software tools that helps you understand the problem space, define and communicate effective solutions, and manage change throughout the life cycle. With the tools and techniques that AnalystStudio provides, you are enabled to *solve the right problem and define the right solution*.

Connect Business, Application, and Data Modelers

All aspects of the problem space, including business and user needs, and system and database requirements must be thoroughly understood before a solution can be defined. Visual modeling provides a clear roadmap to defining the system. With AnalystStudio, models developed by business, system, and data analysts can be developed in one tool with one notation enabling you to *connect business, application, and data modelers*.

Rational Rose unifies business, system, and data analysts' modeling efforts to provide a shared, understandable "big picture" of the problem to be solved. This unified modeling streamlines communication across the team by providing one common tool using a common, industry-standard modeling notation—the Unified Modeling Language. Each group can visually model its domain, and because business, system, and data models are inherently interrelated, associations between the models are automatically created in Rose so change impact can be traced. AnalystStudio helps you *unify analysts with the rest of the team*, creating a firm foundation upon which to build your application.

Capitalize on the Power of Use Cases

Analysts must communicate requirements clearly and effectively to all stakeholders. By describing your system requirements in terms of use cases, you and your team understand more thoroughly, from the users' perspective, what the system ought to do, and you can identify the high-risk components of the system. The use-case paradigm enables you to capture and communicate requirements in a way that:

- Is readily understood by end users
- Drives the design of the system to be implemented
- Ensures the system can be accurately tested

Rational helps you *capitalize on the power of use cases* by providing tools to capture, manage, and model your use cases in one integration solution.

Capture and Manage Changing Requirements

Incomplete requirements and specifications are one of the key reasons projects fail. Documents are the natural format in which you capture requirements, providing context and supplementary information through a familiar Microsoft Word interface. By deeply integrating requirements in Word documents to a choice of enterprise databases, Rational RequisitePro enables you to organize, prioritize, trace relationships, and track changes to your requirements—a feat that is virtually impossible in documents alone. The unique architecture of RequisitePro combines the power of a database and the freedom of Word, thereby giving you the best of both worlds.

Change is inevitable. AnalystStudio provides mechanisms to easily establish and analyze traceability and gives you real-time visual notification of change so you can pinpoint its impact across the project. AnalystStudio helps you *capture and manage changing requirements* to ensure that the intended outcome of the project is what is actually delivered.

What's in AnalystStudio?

AnalystStudio, the Rational Suite edition designed for problem analysis and system definition, contains a complete set of team-unifying tools. It includes the following:

- **Rational ClearCase LT**—a software configuration management solution for project workgroups. ClearCase LT supports the baselining of your software projects in Unified Change Management.

- **Rational RequisitePro**—requirements management software that helps you create and manage requirements throughout the entire development life cycle.
- **Rational Rose Data Modeler Edition**—helps you graphically communicate architectural requirements using the industry-standard Unified Modeling Language. This professional edition of Rational Rose combines the core functionality of the Rational Rose Modeler Edition with a powerful new Data Modeler add-in, complete with round-trip engineer support for database design.
- **Rational ClearQuest**—a flexible and comprehensive change request management system that helps software development teams track and act upon defects and enhancement requests.
- **Rational SoDA for Word**—automates the production and management of documentation and reports relating to your software development project.
- **Rational Test Manager**—helps you plan tests, manage your test assets, and run queries and reports.
- **Rational Unified Process**—defines the role and provides direction for software engineering processes.

Where to Get More Information

The Rational Suite documentation set is included with the Rational Suite media kit. Each Rational Suite edition includes the following documents:

- *Installing Rational Suite*—a guide to installing your Rational Suite software and setting up licenses.
- *Rational Suite Tutorial*—a step-by-step approach to the tools in Rational Suite that follows the Rational Unified Process through an iteration of a software development project.
- *Configuring Rational Suite*—a guide to the administration, synchronization, and out-of-the-box tools and features in Rational Suite.
- *Using Rational Administrator*—a guide and reference document to the primary administration program, Rational Administrator.
- Release Notes—updated technical information about the Rational Suite products.
- Product documentation—each Rational Suite edition includes a documentation set tailored to the appropriate individual practitioner.

The complete Rational Suite product documentation set, available separately, provides comprehensive documentation on the products included with Rational Suite. Electronic versions are available on the *Rational Solutions for Windows—Online Documentation* CD, included with your Rational Suite media kit.

A complete printed documentation set is available. Contact your Rational Sales office. For information about a specific program, see the online help and Extended Help within the program. The following resources provide more information about Rational Suite and its component products:

- Rational Software's Web site: www.rational.com
- *Introducing the Rational Unified Process*, Addison-Wesley, 1998
- Rational Software's UML Resource Center: www.rational.com/uml/

Send comments regarding Rational's technical documentation to techpubs@rational.com. Please identify the product and version and the name of the manual, help file, or other documentation resource you are using.

This chapter is for any analyst using Rational Suite AnalystStudio. It shows you how to:

- Manage stakeholder requests using ClearQuest
- Associate stakeholder requests with requirements
- Manage requirements using RequisitePro
- Associate requirements with use-case models
- Manage use cases using RequisitePro and Rose
- Produce SoDA reports from Rose
- Configure the Rational Unified Process (RUP) for your team and publish to your customized process / project Web site.

The Analyst's Role

The analyst must understand the needs of the user and articulate those needs accurately to all internal team members involved in building the system. Analysts are responsible for defining the right customer problem and identifying the right system solution. To that end, the analyst is responsible for:

- **collecting** the requests or input to the system definition and turning selected requests into actual requirements that can be implemented in a product release;
- **managing** and tracking the individual requirements to make sure everything is properly implemented and tested; and
- **communicating** this critical information to all team members.

AnalystStudio provides the following tools to assist the analyst with these three key activities. The goal is to get the development team started quickly in a common environment and to ensure that the system delivered to the customer meets the original objectives identified in the inception and elaboration phases of the project.

Analyst Task	Corresponding AnalystStudio Tool
Collecting Requests	ClearQuest Web, ClearQuest, and ClearQuest-RequisitePro integration
Managing Requirements	RequisitePro and RequisiteWeb
Modeling	Rational Rose Professional Data Modeler Edition
Communicating Requirements	Rational Unified Process, RequisitePro Word interface, Rose, Rose-RequisitePro integration, Rose Web Publisher, and SoDA
Designing Tests	Rational TestManager, RequisitePro
Managing Change	ClearCase LT, Rational Administrator

In this chapter, an enhancement request submitted by a stakeholder during the inception phase of the project is qualified and followed through the life cycle of a development iteration. The following skills are detailed:

- Creating a requirement from an enhancement request
- Creating a new use case from the requirement
- Managing and modeling the new use case
- Generating meaningful reports to share with stakeholders, team members, and management

Each tool in AnalystStudio has extensive online help and specific product documentation. If you have questions about one of the tools represented, refer to the online help or related documentation for that piece of the software.

Before You Begin

The first steps in working with a Rational Suite involve setup by the project administrator or the individual on the development team with administrative responsibilities. In the case of Rational Suite AnalystStudio, the administrator uses the Rational Administrator program to create a project that contains these artifacts:

- ClearQuest database
- RequisitePro project
- One or more Rose models

Additionally, the ClearQuest / RequisitePro integration must be enabled and configured. For detailed information about enabling and configuring the integration, refer to the guide *Configuring Rational Suite* and the chapter entitled “Configuring the Integration for ClearQuest and RequisitePro.”

If you would like to try the activities demonstrated in this guide, use the Rational Suite Tutorial data, an existing Rational Suite project, that is included with AnalystStudio. The tutorial data must be installed; it contains a complete Rational project. The setup is minimal but must be completed before beginning the associated exercises. For detailed information regarding the installation and setup of this data, refer to the *Rational Suite Tutorial* documentation.

A Word About Rational Unified Process

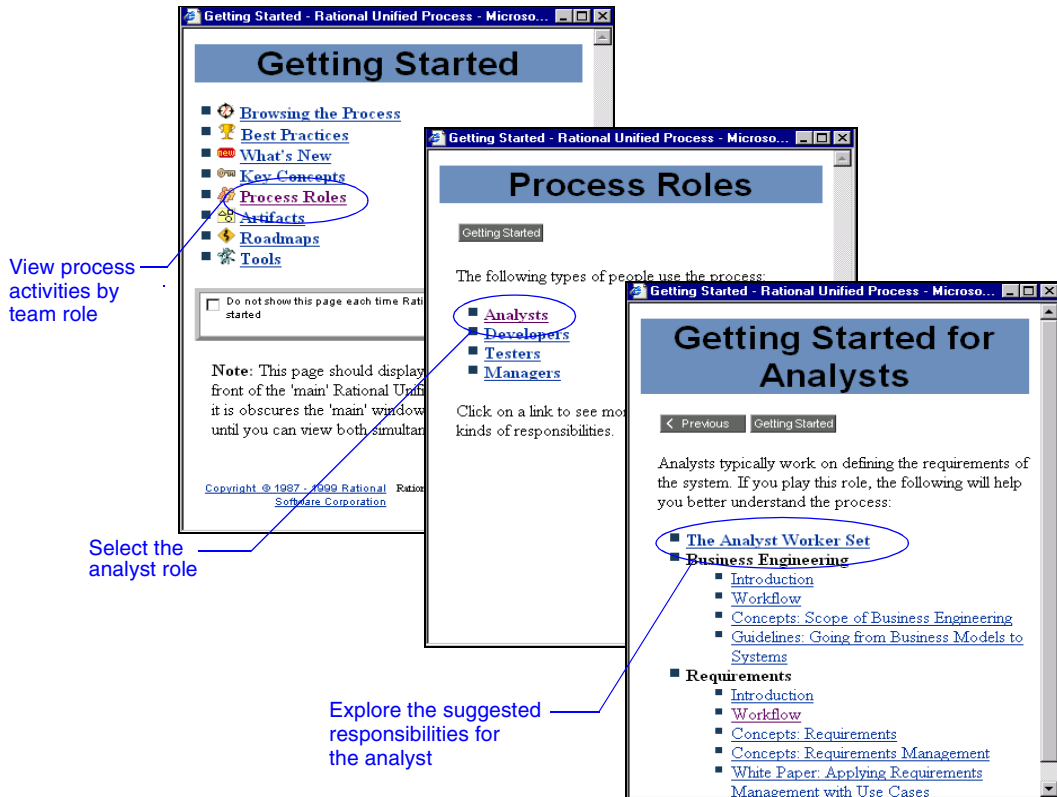
The Rational Unified Process or RUP (formerly Rational Objectory Process) is a Web-based, searchable knowledge base that delivers software best practices through workflows, templates, and tool mentors for all critical software development activities. It includes detailed guidelines for workers, their activities, and the artifacts they manage.

The knowledge base is designed for ease of use and enhanced learning of the RUP, enabling development teams to gain the full benefits of the industry-standard Unified Modeling Language (UML).

RUP is included in the Rational Suite AnalystStudio. Topics in RUP are viewed in terms of the roles of the team member. You might find it helpful to view the process guide for analysts on the team.

Example: Viewing Rational Unified Process “Getting Started” for Analysts

At the **Start** menu, click **Programs > Rational Suite AnalystStudio > Rational Unified Process**. The RUP browser appears. Select the links as indicated in the following figure.



A Word About Unified Change Management

Unified Change Management (UCM) is Rational Software’s out-of-the-box usage model for managing change in software system development from requirements to release. UCM enhances your development efforts by providing baselining of versions at a particular milestone. AnalystStudio includes the tools and methodology necessary to implement UCM.

For more information regarding the UCM, see “Using Rational Unified Change Management with RequisitePro” in the online manual *Using Rational RequisitePro* on your documentation CD, or refer to “UCM” in your RequisitePro online help.

Publishing to a Project Web Site

A project Web is a customized Web site that your development team uses to publish project artifacts that are not proprietary to a Rational tool in a location that can be accessed by all team members.

Many teams use the RUP in whole or in part; you may want to modify the process to fit the needs of your organization. You can use a project Web to store this customized process, as well as other project artifacts, such as:

- Team member names
- Contacts
- Governing standards that apply to the project or system
- Milestone dates
- Workflows
- References cited by the project
- Development cases and related documentation
- Methods to be used for the development life cycle

This provides a convenient and easily accessible location to ensure that all team members are working toward the same goal.

The project Web is provided for you as a template, or starting point, to create a customized process online.

Example: Accessing Project Web Setup Instructions

- 1 Click **Start > Programs > Rational Suite AnalystStudio > Rational Unified Process** (folder) > **Rational Project Web Example**. The project Web template appears.
- 2 Click the **Creating Your Project Web** and **Modifying the Tree browser** hyperlinks on this page; you will find detailed instructions regarding the setup and use of the project Web template.

For more information, refer to the RUP tool mentor entitled “Creating Your Project Web.” Also refer to the section “Creating a Project Web for Your Artifacts” in Chapter 3 of this document.

Business Modeling

Business analysts must be constantly aware of the extensive environment in which their software applications function. The business analyst creates a model of the business to understand the activities and flow of the organization and to provide a common view of that business for both stakeholders and team members. The completed business model often leads to discovery and comprehension of current problems in the organization, which can then be addressed in the development cycle. Business models are beneficial when the application environment is complicated and involved and when the system is used by many people with varying needs.

Business modeling using the UML notation is done with Rational Rose contained in the AnalystStudio. For more information regarding business modeling, see the white paper entitled *Business Modeling with Rational Suite AnalystStudio*. Also refer to the topic “Business Modeling” in the Rational Rose online help.

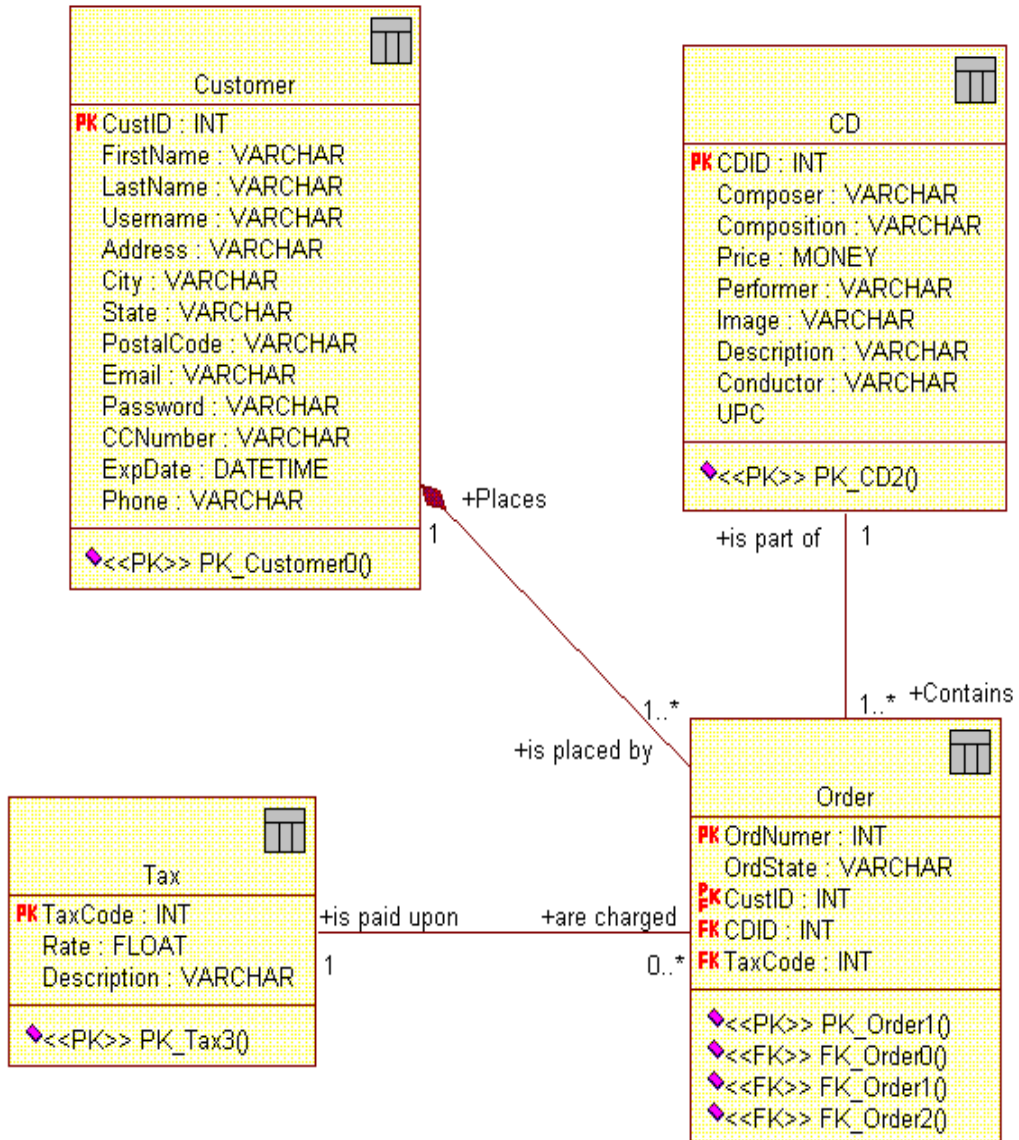
Data Modeling

Rational Software’s addition of data modeling capabilities to Rational Rose delivers *unified modeling* to software development teams. Designed to make the data analyst a vital part of the development team, unified modeling helps to eliminate the communication deficiencies existing in many organizations today. Rational Rose Data Modeler is a UML-based data modeling tool that allows data modelers, developers, and business analysts to work together in one notation and one tool, capturing and sharing business requirements and tracking them as they change throughout the development process.

Data Modeler allows you to generate a database schema using the UML notation from a Rational Rose model. It supports most specific database functions, such as:

- Creating tables, columns, indexes, relationships, and keys (primary and foreign)
- Creating column constraints, and both Declarative Referential Integrity and Referential Integrity triggers
- Creating custom triggers and their generated trigger code
- Creating multiple diagrams for the model

Figure 1 Rational Rose data model



For more information regarding data modeling with Rational Rose, refer to the topic “Rose Data Modeler” in the Rational Rose online help.

Managing Enhancement Requests Using ClearQuest

RUP suggests that the first step in developing a software application is to elicit requests and needs from the stakeholders involved through the use of interviews, workshops, and other elicitation techniques. After the first iteration of the software application is created, the analyst also must keep a pulse on evolving requirements as enhancement or change requests are submitted by the stakeholders and users.

ClearQuest provides several vehicles for collecting, managing, and communicating those requests to all team members. Stakeholders and remotely located team members can use the ClearQuest Web interface to log their input from distant locations. (For more information on using ClearQuest Web, see the ClearQuest Web online help or user documentation.) The following figure displays the ClearQuest Web user interface.

The screenshot shows the ClearQuest Web interface for submitting an enhancement request. The top header includes the Rational logo, the text "Database RMBU", and a timestamp "3/3/00 2:13:08 PM". Below the header, there are "OK" and "Cancel" buttons. The main content area is titled "Submit Enhance_Request RMBU00011455" and contains a "Main" tab. The form fields include: "Headline:" (text input), "ID:" (RMBU00011455), "State:" (Submitted), "Project:" (dropdown menu), "Customer Priority:" (dropdown menu), "Origin:" (dropdown menu), and "Description:" (text area). At the bottom, it shows "CQ Schema Version: 112".

Upon submission, the requests are automatically stored in the ClearQuest change requests central database where they are readily available to the analyst.

Note: After enhancement requests have been submitted, the analyst further qualifies these requests by adding additional information to each request. The analyst typically works in the ClearQuest Windows application, which provides full functionality for the analysis process.

When using AnalystStudio, ClearQuest provides additional tabs to the default tabs on the record form. These tabs can be configured and customized for your own environment. They include:

- **History** tab
- **Resolution** tab
- **Notes** tab
- **Analysis** tab

In the **Analysis** tab (see the following figure), the analyst complements the submitter information with additional information to assist in organizing this request with all the others. For instance, the analyst might set the **Marketing Priority** attribute of an enhancement request to **Low** even though the stakeholder set the **Customer Priority** field as **High**, because the request might not comply with the project business goals.

The screenshot displays the AnalystStudio interface for a request record. The interface is divided into several sections:

- Navigation Tabs:** At the top, there are four main tabs: **Resolution**, **Requirements**, **Attachments**, and **History**. Below these, there are four sub-tabs: **Main**, **Analysis** (which is currently selected), **Customer**, and **Notes**.
- Form Fields:** The main area contains several fields, each with a dropdown menu:
 - Marketing Priority:** Set to **Low**.
 - Request Type:** Set to **New Feature**.
 - Product:** Set to **Product A**.
 - Product Area:** Set to **GUI**.
 - Target Release:** Set to **2.0**.
 - Owner:** Set to **pat**.
- Action Buttons:** On the right side, there are four buttons: **Apply**, **Revert**, **Print**, and **Actions** (with a dropdown arrow).
- Footer:** At the bottom left, there is a status bar showing navigation arrows and the text **ID : 00000051**.

Creating Feature Requirements with ClearQuest in RequisitePro

After the enhancement requests are collected, the analyst incorporates this user feedback into the system definition. In ClearQuest, this is done by creating requirements from qualified enhancement requests and by maintaining an association between these two entities to track the source of requirements.

During the inception phase of each release and at the beginning of each software iteration, the analyst examines the current set of enhancement requests in ClearQuest and determines which ones will drive new requirements or modifications to existing requirements.

For each enhancement request identified to drive system functionality, the analyst creates a requirement by reformulating the text of the enhancement request into a valid requirement definition. (A well-defined requirement definition refers to those requirements that are testable, unambiguous, and complete.) If such a requirement already exists, the analyst simply associates the enhancement request to the existing related requirement. In a Rational project, each enhancement request may be associated with several requirements, and each requirement may be associated with several enhancement requests.

To be able to associate enhancement requests with requirements, the ClearQuest database and the RequisitePro project must be part of a common Rational project.

Note: This association must be done using the ClearQuest Windows application.

Example: Associating Enhancement Requests with Requirements

- 1 In a ClearQuest enhancement request, identify a Rational Administrator project as the source of the requirements to be associated with the enhancement request.

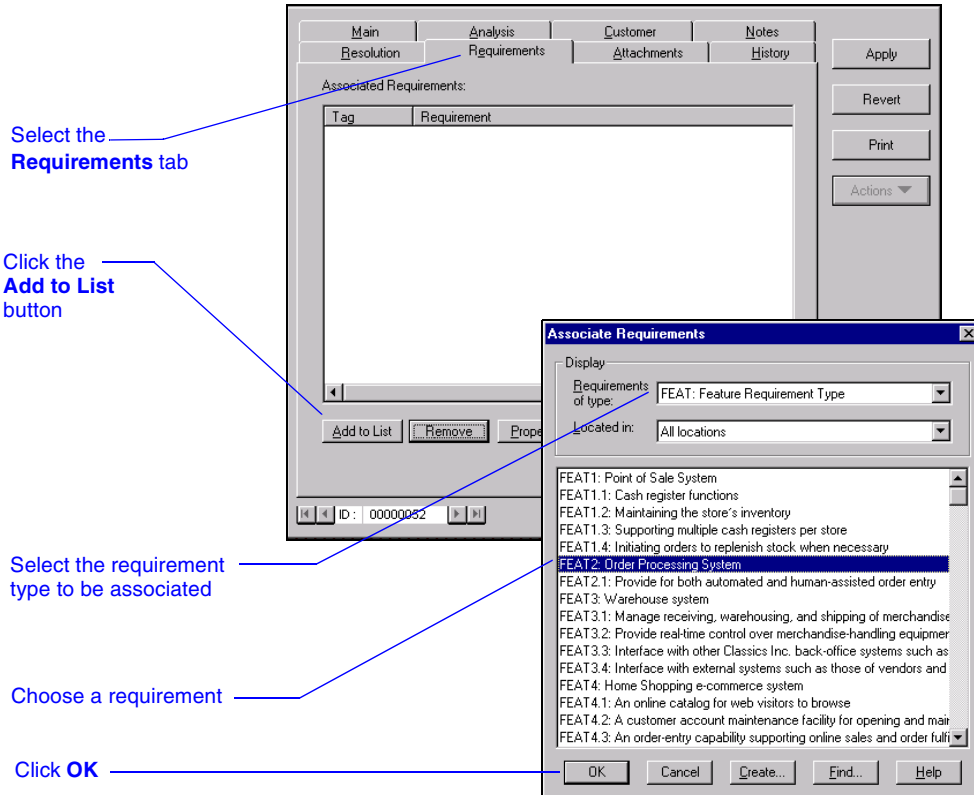
The screenshot shows a web-based form for an enhancement request. The form has a tabbed interface at the top with tabs for 'Resolution', 'Attachments', 'History', and 'Requirements'. The 'Requirements' tab is active, and within it, the 'Main' sub-tab is selected. The form contains the following fields and controls:

- ID:** A text input field containing 'SAMPL00000045'.
- State:** A text input field containing 'Submitted'.
- Headline:** A text input field containing 'Online demo of CD's'.
- BA Project:** A dropdown menu with 'ClassicsPOS' selected.
- Customer Priority:** A dropdown menu with 'High' selected.
- Description:** A large text area containing the text: 'We should offer our customers the ability to access oursite online and hear a sample of any CD offered by Classics Online.'

On the right side of the form, there is a vertical column of buttons: 'Apply', 'Revert', 'Print Record', and 'Actions' (with a dropdown arrow). Three blue annotations with arrows point to specific elements:

- 'Click the Main tab' points to the 'Main' sub-tab.
- 'To edit the record, click **Actions > Modify**' points to the 'Actions' button.
- 'Select a Rational Administrator project for requirement association' points to the 'BA Project' dropdown menu.

- 2 Look for any existing requirements that correspond to the enhancement request, and associate all requirements that apply. (If there are no related requirements, create a new one. Refer to Step 3 for details of this activity.)



3 Create a new requirement to associate with the enhancement request.

Select the **Requirements** tab

Click the **Add to List** button

Select the requirement type to be created

Click the **Create** button

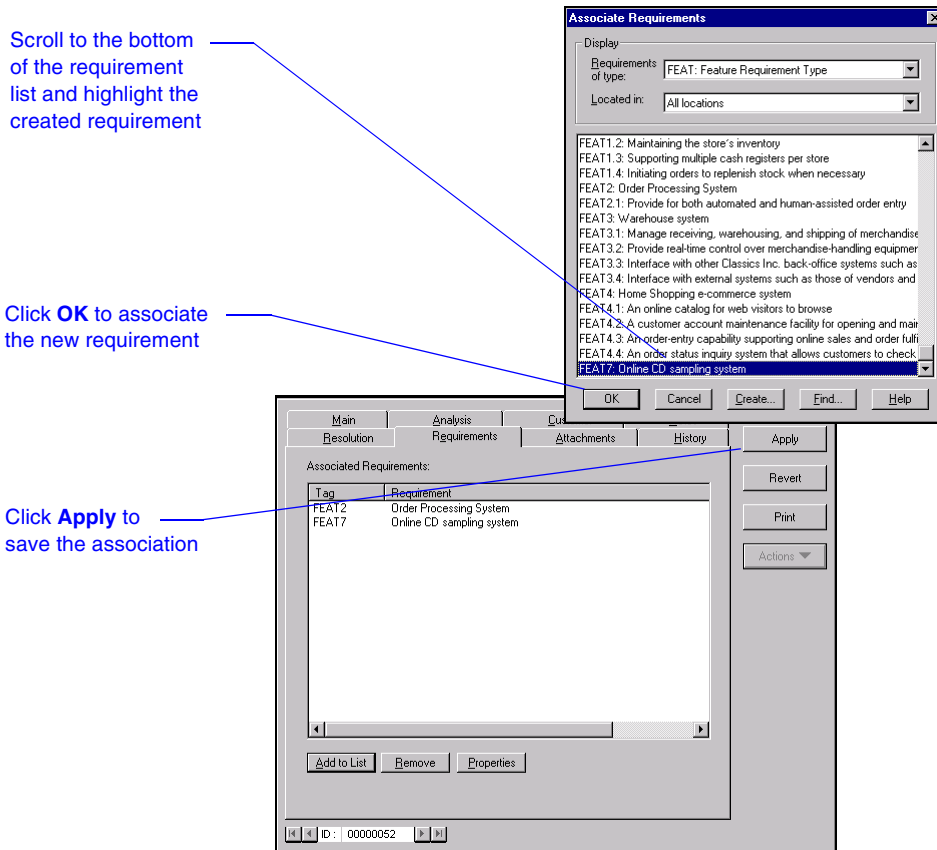
Enter the requirement text

Click **OK**

The screenshot shows the following components:

- Main Window:** Tabs for Main, Analysis, Customer, Notes. The Analysis tab is active, showing a table for Associated Requirements with columns Tag and Requirement.
- Associate Requirements Dialog:** A dialog box with a 'Display' section containing 'Requirements of type:' (FEAT: Feature Requirement Type) and 'Located in:' (All locations). Below is a list of requirement types, with 'FEAT2: Order Processing System' selected. Buttons at the bottom include OK, Cancel, Create..., Find..., and Help.
- Requirement Properties Dialog:** A dialog box titled 'Requirement Properties: [Pending] FEAT-1' with tabs for General, Revision, Attributes, Traceability, and Hierarchy. The 'General' tab is active, showing 'Type:' (FEAT: Feature Requirement Type), 'Location:' (Database), and 'Text:' (Online CD sampling system). Buttons at the bottom include OK, Cancel, and Help.

4 Associate the new requirement and save your changes.



Your associated requirement now appears in ClearQuest on the **Requirements** tab. You can also view the association from the requirement itself in RequisitePro.

Managing Requirements with RequisitePro

RequisitePro is the AnalystStudio component that the analyst uses for most of the requirement-related functions. RequisitePro is one of the four *team-unifying* tools in Rational Suite (provided as part of all Rational Suite products) and is also the primary *practitioner-focused* tool for the analyst. RequisitePro combines the flexible formatting of the word processor, Microsoft Word, with the structure and processing power of a commercially available database.

After creating requirements, the analyst manages the scope of the project in RequisitePro by using various queries to decide which requirements will actually be included in each software iteration. Pertinent information regarding each requirement can be tracked through the use of user-definable attributes such as priority, status, and difficulty for each requirement. The analyst also sets traceability relationships to other components of the development cycle to ensure complete coverage.

The ClearQuest / RequisitePro integration is a two-way integration. Working in RequisitePro, the analyst can view the original enhancement requests or defects on which the requirement is based, as well as establish new associations. The following figure represents these actions from RequisitePro.

The image shows two overlapping windows from the RequisitePro application. The top window, titled "RequisitePro Views - [FEAT: Attribute Matrix]", displays a table of requirements. The bottom window, titled "Associate Enhancement Requests", shows a list of associated records from ClearQuest.

RequisitePro Views - [FEAT: Attribute Matrix]

Requirements:	Priority	EnhancementRequest	Status
FEAT1: Point of Sale System	High	CLSIC00000049,CLSIC00000050	Approved
FEAT2: Order Processing System	Low	CLSIC00000052	Incorporate
FEAT3: Warehouse system	High		Incorporate
FEAT4: Home Shopping e-commerce system	High		Validated
FEAT7: Online CD Sampling System	Medium	CLSIC00000053	Proposed
* <Click here to create a requirement>	Medium		Proposed

Associate Enhancement Requests

Associated Records:

id	State	Headline
1	Submitted	Download CD Sample
2		
3		
4		
5		
6		
7		
8		
9		
10		

Records:

Query: Personal Queries\All Enhancement Requests

Results:

id	Headline
1	CLSIC00000049 Should support multiple cash registers per store
2	CLSIC00000050 Should support full-text searching
3	CLSIC00000051 Should be able to query across multiple databases
4	CLSIC00000052 Online demo of L&E
5	CLSIC00000053 Downloaded CD Sample
6	
7	
8	
9	
10	

Annotations:

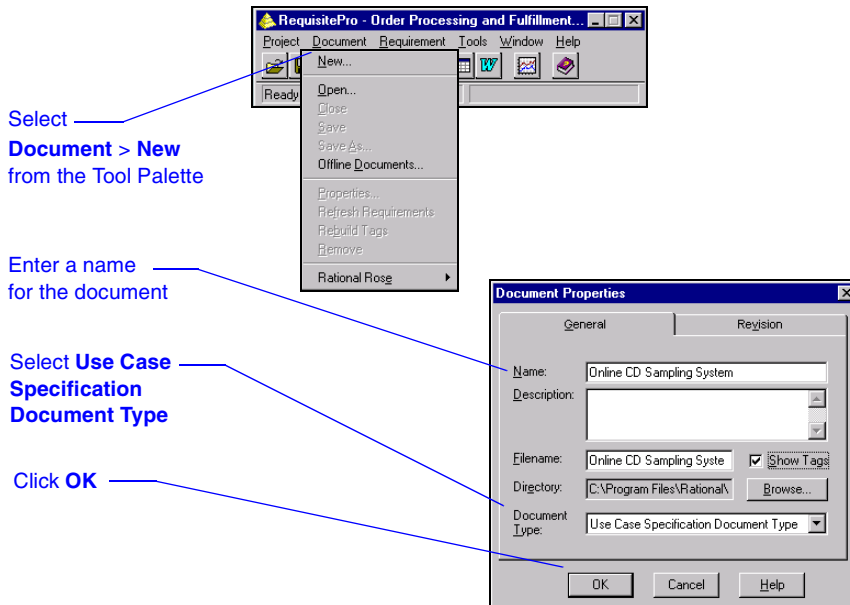
- Create a FEAT attribute matrix in RequisitePro
- Locate the attribute "EnhancementRequest"
- Scroll to an associated requirement
- Double click the ClearQuest record ID and click the ellipse button
- View the associated requirement
- Select any additional ClearQuest Record to associate
- Click Associate to associate new records

If the analyst determines that a feature requirement drives new functionality, a new use case is created to model the new functionality.

Note: The analyst can use either Rose or RequisitePro to create the new use case. In the following example, the analyst begins with RequisitePro.

Example: Creating a New Use Case Document and Requirement in RequisitePro

- 1 Open RequisitePro and the related Rational Administrator project.
- 2 Create a new document.



The new document, complete with an associated template, is displayed on your desktop. The template presents a starting point for requirement documentation and contains an outline with textual instructions for content of the document. The analyst replaces the default text with meaningful project data.

3 Create a Use Case name within the document and make it a requirement.

Scroll to and enter the use case name

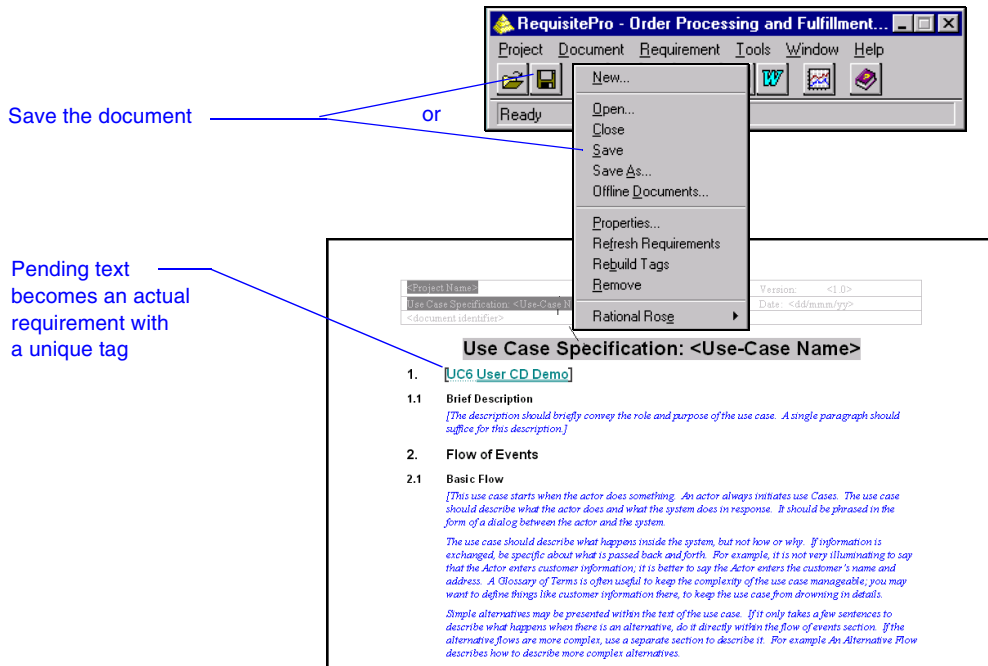
Highlight use case name and right mouse click

Select **Create Requirement** from context menu

Click **OK**

The screenshot shows a document editor with a table at the top containing fields for Process Name, Use Case Specification, Version, and Date. Below the table is a section titled "Use Case Specification: <Use-Case Name>". The content includes a numbered list: 1. User CD Demo, 1.1 Brief Description, 2. Flow of Events, and 2.1 Basic Flow. A context menu is open over the "User CD Demo" text, with the "Create Requirement..." option highlighted. Below the document editor is a "Requirement Properties: UCpending2" dialog box with tabs for General, Revision, Attributes, Traceability, Hierarchy, and Discussions. The "General" tab is active, showing fields for Type (UC Use Case Requirement Type), Location (Online CD Sampling System), and Text (User CD Demo). The "OK" button is highlighted.

- 4 Save the document. This action adds the requirement to the database and saves the document to the disk.



Managing Use Cases with Rose and RequisitePro

Use cases consist of graphical models, textual descriptions, attributes, traceability links, and more. Managing use cases along with all other requirements is key to understanding the state of the project and better enables you to deliver the right system. Rational presents Integrated Use Case Management, which seamlessly incorporates requirement information in use-case models. Integrated Use Case Management allows the analyst to manage use cases by using requirement attributes and by associating requirement documents with use cases. This benefits the analyst by establishing a real-time window to modify use-case attributes and traceability, view revision history, and add textual descriptions in documents from Rose.

Example: Creating a Use Case in Rose from a RequisitePro Requirement

Create a new use case in Rose from a RequisitePro requirement.

The image shows a screenshot of the RequisitePro application window titled "RequisitePro - Order Processing and Fulfillment...". The window displays a "Use Case Specification: <Use-Case Name>" document. The document content includes:

- Project Name: <Project Name> Version: <1.0>
- Use Case Specification: <Use-Case Name> Date: <dd/mm/yy>
- <document identifier>
- Use Case Specification: <Use-Case Name>**
- 1. **[UC6 User CD Demo]**
- 1.1 **Brief Description**
[The description should briefly convey the role and purpose of the use case. A single paragraph should suffice for this description.]
- 2. **Flow of Events**
- 2.1 **Basic Flow**
[This use case starts when the actor does something. An actor always initiates use Cases. The use case

A context menu is open over the "Requirement" menu item in the RequisitePro window. The menu items are:

- Create...
- Block Create...
- Properties...
- Annotate Change...
- Find...
- Go To...
- Discussions...
- Trace To...
- Trace From...
- Cut
- Copy
- Paste
- Delete (Unmark)
- Block Delete (Unmark)
- Delete (Remove)
- Rational Rose ▶

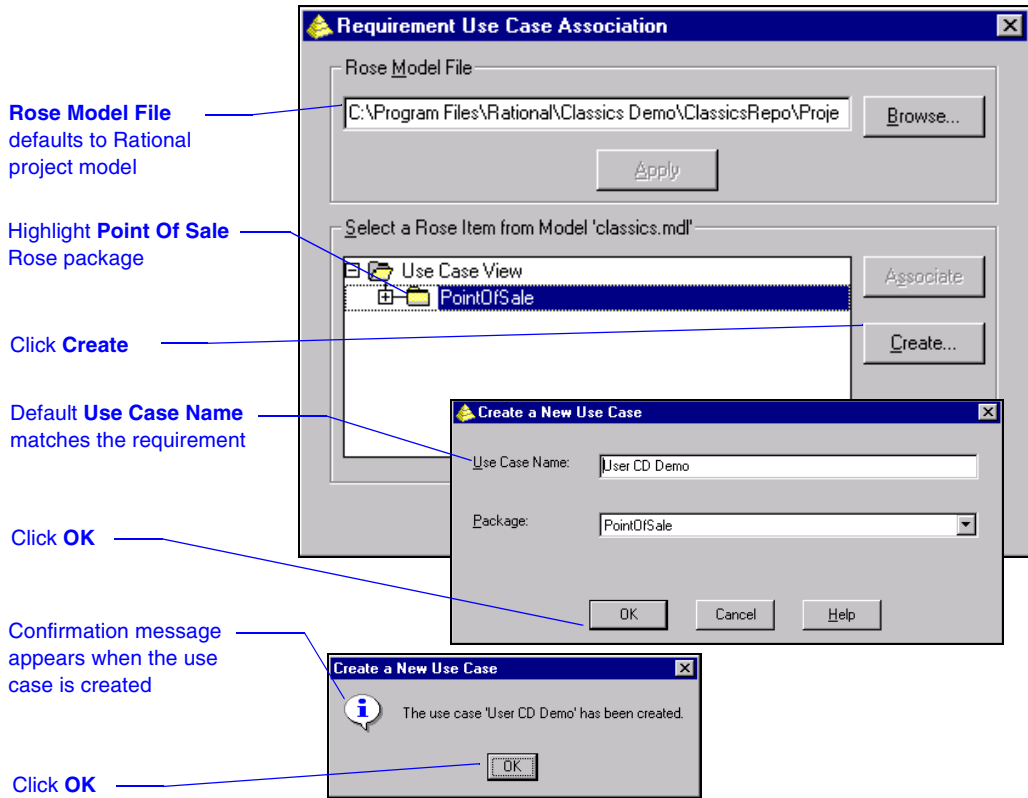
The "Rational Rose" submenu is open, showing the following options:

- Go to Rational Rose
- Associate to Use Case

Annotations with blue arrows point to the "Requirement" menu item and the "Associate to Use Case" option. Text labels on the left side of the image provide instructions:

- "Click in the requirement to activate it" points to the "Requirement" menu item.
- "Select Requirement > Rational Rose > Associate to Use Case" points to the "Associate to Use Case" option in the submenu.

The Requirement Use Case Association dialog box appears.

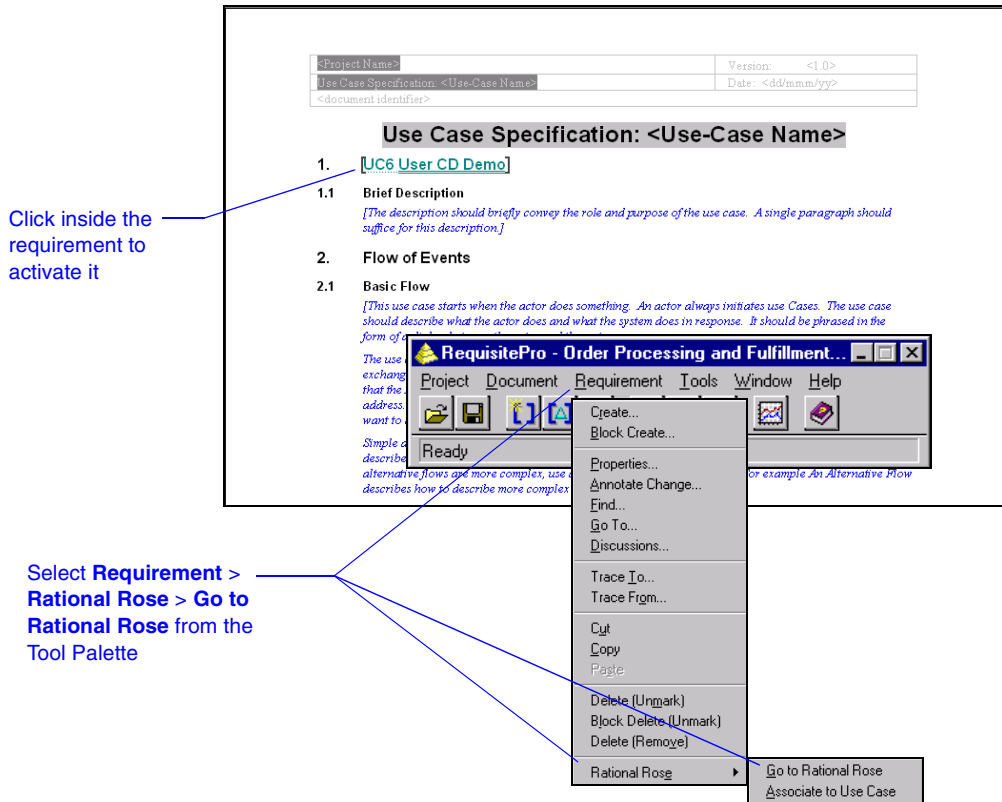


To associate the requirement with an existing use case in Rose, click the **Associate** button, expand the package, and select the desired target use case.

Now the analyst moves from RequisitePro to Rational Rose to model the use case.

Example: Navigating from RequisitePro to Rose

Use the seamless integration from RequisitePro to open Rational Rose within the context of the selected requirement and further elaborate the use case by applying a model and related diagram.



Rational Rose loads and becomes active on your desktop.

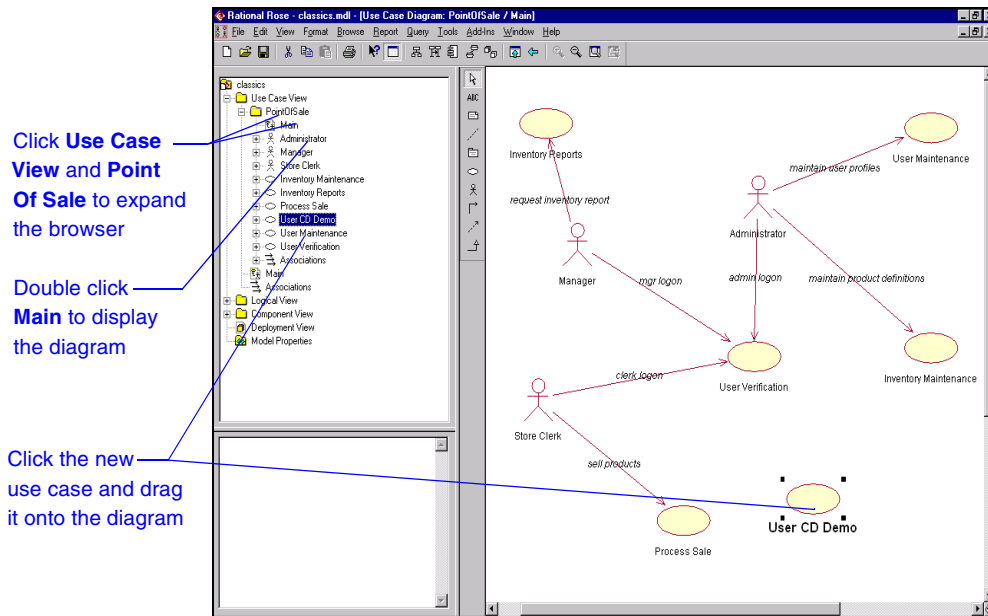
Modeling the Use Case in Rose

Rational Rose is the visual modeling tool that lets you create, analyze, design, view, modify, and manipulate components and implement systems in a way that makes them truly easy to communicate. Modeling promotes better understanding of requirements, cleaner designs, and more maintainable systems.

Using Rose, the business analyst, data analyst, and system analyst can graphically depict an overview of the behavior of the system or business with a use-case diagram. Use-case diagrams present a high-level view of how a system is used as seen from an outsider's (or actor's) perspective. These diagrams graphically depict system behavior (also known as use cases). A use-case diagram may depict all or some of the use cases of a system.

Example: Creating a Use-Case Diagram in Rational Rose

When Rational Rose is launched, the Use Case Specification for User CD Demo dialog box opens to allow editing of the use-case specification properties. Click **OK** to save this specification and continue with the following instructions.



The use case is added to the diagram window complete with the textual title associated with the use case. After the use case is added to the diagram, it is simple to add relationships, associations, dependencies, and actors by using the diagram toolbox.

For more information, see the user's guide for Rational Rose 2000e or the Rose online help.

Managing the Use Case from Rational Rose

Effective use-case management also requires integrated documentation to record the current status of the use case and to provide detailed descriptions of the use case. By associating the use-case document with a use-case diagram in Rose, the analyst provides a platform of communication and a common project for all textual elaboration of the use case. Not only will the analyst continue to add comments to the document, but the developer working in Rose can access the same document and contribute input. With a single common document for the use case, communication between team members is maximized. By using the same tool, the data analyst modeling the data for the system, the business analyst modeling activity diagrams, and the system analyst modeling the system ensure that there is no misunderstanding with the system designer.

Use-case attributes are managed from Rose in an associated RequisitePro requirement. The requirement dialog box defaults to the **Attributes** tab when the dialog box opens. Use the **General** and **Revision** tabs to review requirement information. In addition, you can use the **Traceability** tab to add traceability to and from other requirements in RequisitePro.

For more information refer to the topic “Requirement Properties” in the RequisitePro online help.

Example: Attributes and Documents

- 1 Open the RequisitePro requirements document that is associated with a use case in Rose.

The image shows two parts of the Rose software interface. The top part is a 'Use Case View' tree under 'classics'. The tree structure is as follows:

- classics
 - Use Case View
 - PointOfSale
 - Main
 - Administrator
 - Manager
 - Store Clerk
 - Inventory Maintenance
 - Inventory Reports
 - Process Sale
 - User CD Demo (highlighted)
 - Online CD Sampling System.UCS
 - User Maintenance
 - User Verification
 - Associations
 - Main
 - Associations

Annotations for the top part:

- Right-click the use case; an associated document is displayed (points to 'User CD Demo')
- Tip: Double-clicking the Word icon also opens the document (points to the Word icon next to 'User CD Demo')

The bottom part shows the 'Use Case Specification' document for 'UC6 User CD Demo'. The document content is:

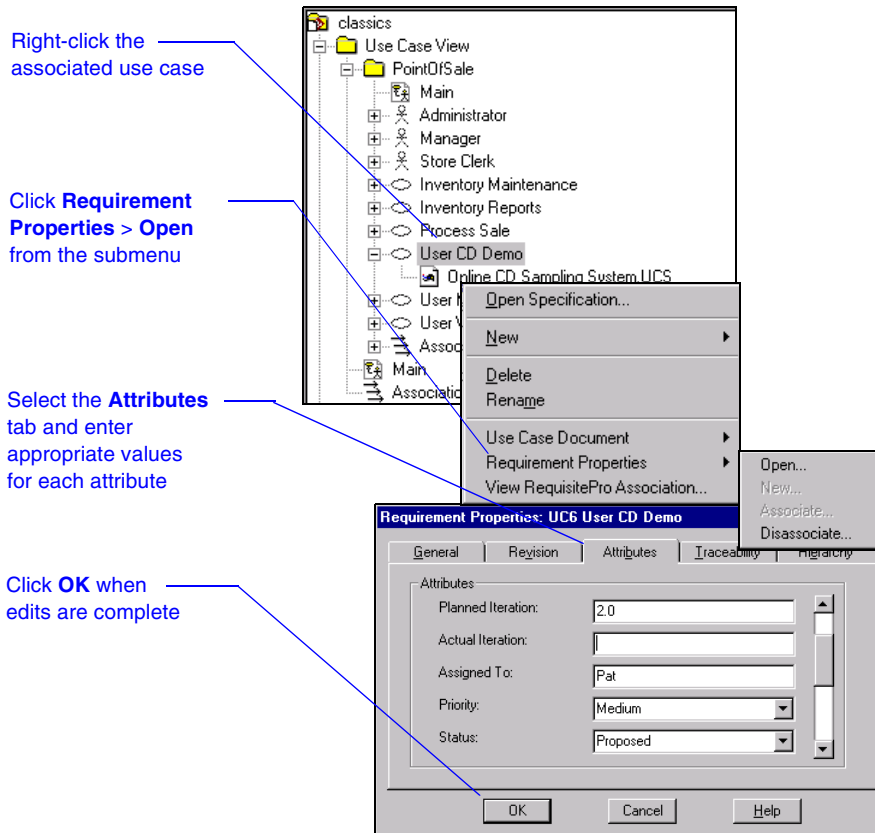
Use Case Specification: <Use-Case Name>

1. **UC6 User CD Demo**
- 1.1 **Brief Description**
[The description should briefly convey the role and purpose of the use case. A single paragraph should suffice for this description.]
2. **Flow of Events**
- 2.1 **Basic Flow**
[This use case starts when the actor does something. An actor always initiates use Cases. The use case should describe what the actor does and what the system does in response. It should be phrased in the form of a dialog between the actor and the system.
The use case should describe what happens inside the system, but not how or why. If information is exchanged, be specific about what is passed back and forth. For example, it is not very illuminating to say that the Actor enters customer information; it is better to say the Actor enters the customer's name and address. A Glossary of Terms is often useful to keep the complexity of the use case manageable; you may want to define things like customer information there, to keep the use case from drowning in details.
Simple alternatives may be presented within the text of the use case. If it only takes a few sentences to describe what happens when there is an alternative, do it directly within the flow of events section. If the alternative flows are more complex, use a separate section to describe it. For example An Alternative Flow describes how to describe more complex alternatives.

Annotations for the bottom part:

- Click Use Case Document > Open from the submenu (points to the 'Open...' option in the context menu)
- The associated use case document opens for editing (points to the 'UC6 User CD Demo' title)

2 To set the values of the use-case attributes, do the following:



For more information, refer to the help topics “Assigning attribute values to a use case” and “Opening the associated document” in the Integrated Use Case Management online help.

Generating Reports Using Soda

SoDA automates the creation of software documentation by extracting information from software engineering tools such as RequisitePro, ClearQuest, ClearCase, and Rose. Using templates created in Word, SoDA formats the extracted information into a report. SoDA contains many predefined templates and allows creation of customized templates with an easy-to-use template creation tool.

Use-Case Model Survey

A Use-Case Model Survey describes the use-case model comprehensively, in terms of how the model is structured into packages and what use cases and actors are contained in the model. The report can be used to describe the entire use-case model at different stages:

- During inception, when you have defined the scope of the system
- During elaboration, when the use-case model is more stable
- During construction, when requirements are complete

The Use-Case Model Survey merges textual information and graphical diagrams into a concise report to ensure reviews are done on the most updated and complete materials available. This report is used by various people interested in the use-case model, such as the customer, stakeholders, architects, use-case authors, designers, use-case designers, testers, managers, reviewers, and writers.

Example: Generating a Use-Case Model Survey Report

Expand the **Use Case View** and **PointOfSale** packages

Double-click **Main** to display the diagram

Click **Report > SoDA Report** from the Rose menu bar

Click a template (**Use-Case Model Survey Report**) and click **OK**

Generate web page

Title
Detail of all Attributes and Operations by Class by Package
Physical View summary
Rational Unified Process Business Object Model Survey
Rational Unified Process Design-Model Survey
Rational Unified Process Software Architecture Document
Rational Unified Process Use-Case Model Survey
Software Design Document
Summary of Packages and Classes in the Logical View
Summary of Packages with Diagrams and Class Descriptions
Summary of Packages, Classes, and Public Attributes/Operations
Use-Case Model Survey

If this report is being generated for use on the Web, select the **Generate Web page** check box. When activated, this option saves the SoDA report in *.HTML format. The report is then available for access from your Web site. When the report is placed on your Web site, external customers and remote team members can review it and keep current on the project. If this check box is not activated, the SoDA report is saved in Microsoft Word format (*.doc).

For more information, refer to the SoDA for Word online help.

Rational TestManager

Rational TestManager, the test organization component of AnalystStudio, is used to organize and manage all testing assets throughout the entire software development cycle. It serves as a single, central starting point for the creation of test cases with inputs, execution conditions, and expected results as well as an open, extensible environment to execute and validate these test cases through scripts and suites (schedules). It also organizes all test assets (including source code and visual models) to enable effective communication between testers and developers. Subsequently, TestManager assesses this execution according to the test plan and produces detailed and informative reports.

Test planning and design is started early, usually in the elaboration phase of the development cycle. As more information becomes available about the new software, additional test planning and design are necessary to complete these test activities.

For more information regarding Rational TestManager, refer to the online guide *Using Rational TestManager* on the documentation CD included with your software.

Implementing the Unified Change Management Model

After all of your project artifacts have been defined, you should make a baseline of your Rational project using Rational ClearCase LT. Your project administrator must enable the UCM capabilities of your Rational project when it is created. When that is done, it is easy to create a baseline of your artifacts at specific milestones of your project as you continue with more iterations of the application.

This chapter is for Rational Suite AnalystStudio project administrators. It includes discussions of:

- Rational-supplied tools that help the administrator create a Rational Administrator project
- The basic setup required to enable the ClearQuest and RequisitePro integration

It also provides customization overviews of:

- RequisitePro
- ClearQuest
- SoDA
- Project Web site

Overview of the Rational Administrator Project

A Rational Administrator project is a logical collection of Rational artifacts, which is created by a project administrator in the Rational Administrator application. The Rational Administrator project enables analysts to take advantage of integrations among Rational Suite tools.

When working with AnalystStudio, the Rational Administrator project typically consists of:

- One ClearQuest database adapted for the analyst (AnalystStudio schema)
- One RequisitePro project
- One or more Rose model files

The Rational Administrator interface centralizes the management of a project and is used to create or modify the project. After creating the project, the project administrator adds security for ClearQuest and RequisitePro artifacts and places the Rational Administrator project under configuration control.

For more information, refer to *Configuring Rational Suite* on your documentation CD.

Working with the “Out of the Box” Artifacts

Rational Suite provides sample material to help you get started with a Rational Administrator project.

- Rational RequisitePro contains project templates for creating new projects. These templates include predefined document types, requirement types, and attributes. Use the Use-Case Template for creating a RequisitePro project that you want to integrate with Rational Rose use cases and ClearQuest enhancement requests or other ClearQuest records.
- The Rational Suite installation program places a sample Rose model in the Rose installation directory. The default location is: `C:\Program Files\Rational\Common\OutOfTheBox\rose frameworks\rup framework.mdl`
- The Rational Suite installation program places an AnalystStudio schema file in the ClearQuest installation directory. The default location is:
`C:\Program Files\Rational\ClearQuest\Schemas\AnalystStudio.schema`

These samples provide a good starting point for each of the three products when beginning a new development project using AnalystStudio. When you use the samples, relevant data such as ClearQuest record types and states, RequisitePro requirement types and document types, and Rose model frameworks are already created. This dramatically reduces the setup time required.

For more information, refer to the chapter "Rational Suite Out-of-the-Box Tools" in the *Configuring Rational Suites* guide on your documentation CD.

Enabling the ClearQuest/RequisitePro Integration

Prior to working with the integration between RequisitePro and ClearQuest, it is necessary to edit and run the file `ASCQISetup.bat`. This file can be found at `<Install Path>\RequisitePro\Common\ASCQISetup.bat`. The integration setup assumes that the ClearQuest database is created using the Rational provided AnalystStudio schema. This schema contains customized records and fields that are shared between the two products after the `ASCQISetup.bat` is run.

The `ASCQISetup.bat` file must be edited to contain the following specific information:

- The name of the ClearQuest database
- The path to the RequisitePro installation
- The SuperUser login name for the ClearQuest database and RequisitePro

- The name of the RequisitePro project
- The path to the RequisitePro installation directory
- The full path to the RequisitePro *.rqs (project) file

After the edits are made, the `ASCQISetup.bat` file is ready to be run for your integration environment. This file is executed each time a new Rational Administrator project is created to enable the integration.

For more information, refer to the guide *Configuring Rational Suites* in your documentation CD.

Customizing Your ClearQuest Schema

A ClearQuest *schema* refers to the structure of the change request database. The schema establishes the following information for each change request record:

- Record type definitions
- Forms used to submit and modify a record
- Field definitions and behavior
- States of a record
- Actions used to modify or change the state of a record
- Hooks written in Visual Basic Script or Perl that further customize fields and actions

ClearQuest stores schemas in a *schema repository*. A ClearQuest installation usually consists of one schema repository and one or more user databases. Care should be taken when customizing the schema if development plans include using the ClearQuest/RequisitePro integration. If the integration is used, you should use the Rational-provided AnalystStudio or Enterprise schema.

For more information, refer to the chapter “Choosing a ClearQuest schema” in the *Introducing Rational ClearQuest* user documentation. This documentation provides an overview of how to use ClearQuest and a brief example of the ways a ClearQuest administrator can customize ClearQuest to fit your change management workflow.

Customizing a schema is a multi-step process involving these basic procedures:

- **Define your data.** To define the data you want to collect and manage in ClearQuest, you work with record types and fields.

- **Define your state model.** (See “Defining your State Model” in the *Administering ClearQuest* user guide.) Each record type has its own state model. A state model consists of states, state types, actions, and field behaviors.
- **Build your forms.** See “Working with Record Forms in the *Administering ClearQuest* user guide.
- **Add hooks.** See “Adding Action Hooks” in the *Administering ClearQuest* user guide and the chapter entitled “Using Hooks to Customize Your Workflow” in the same book.

Note: ClearQuest includes several predefined schemas that you can use “as is” or customize to fit your procedures. For a list of these schemas, see “Choosing a ClearQuest schema” in *Introducing Rational ClearQuest*.

For more information regarding schemas, refer to the topics “Working with schemas” and “Creating a new schema” in the *ClearQuest Designer* online help.

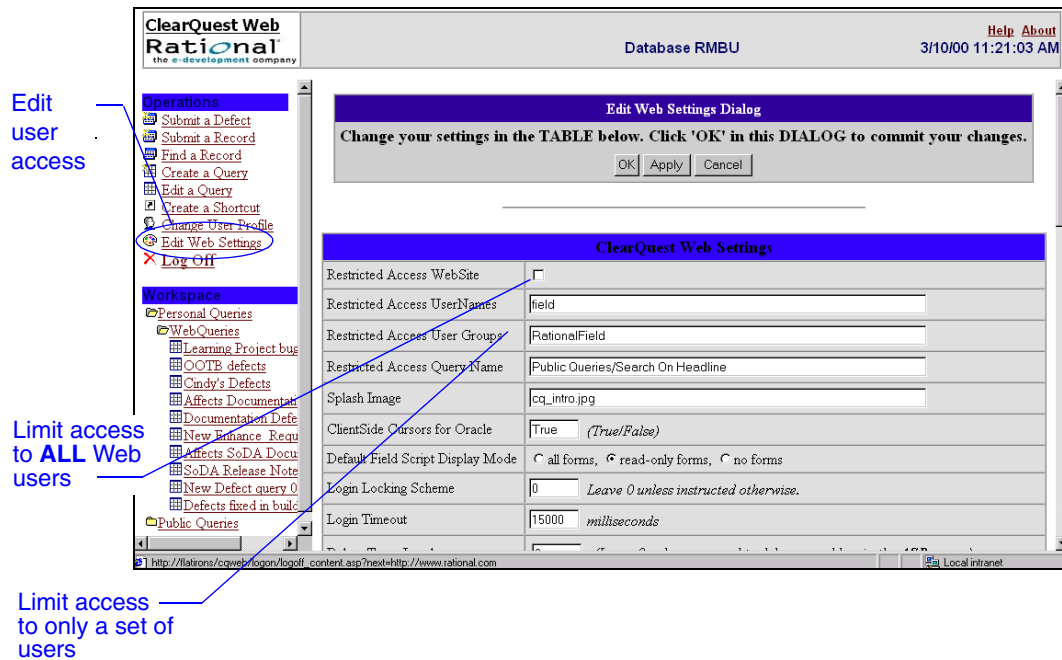
Configuring “Web-enabled Elicitation” Through ClearQuest

ClearQuest Web is a Web-based interface to the ClearQuest change request management application. ClearQuest Web allows you to track defects and change requests and identify the most important problems or enhancements to your product. ClearQuest Web helps you determine the quality of your application or component during each phase of the development cycle and helps you track the release in which a feature, enhancement, or bug fix appears.

Using ClearQuest Web, you can perform the following activities from the browser:

- Submit change requests
- View and modify existing records
- Run predefined queries
- Create and run new queries
- View predefined charts and reports

ClearQuest Web allows you to extend support to users through a Web interface. With ClearQuest Web, users can access ClearQuest data from remote locations. ClearQuest Web supports many of the same features as the native Windows ClearQuest client, with some exceptions.



For more information, refer to the chapter “Administering ClearQuest Web” in the *Administering Rational ClearQuest* guide.

Customizing Your RequisitePro Project

All components of the RequisitePro project can be customized or configured to meet the needs of your development team. After the project is created, the artifacts may be customized or created based on the data that the development team deems necessary to track throughout the entire requirement management process and the life cycle of the project. Basic artifacts that can be customized for the RequisitePro project include:

- Requirement types, prefixes, style, color, and keywords
- Attributes and attribute values
- Documents and document types
- Database type
- Project security

For more information, refer to *Using Rational RequisitePro*.

Creating SoDA Templates

SoDA for Word provides a user friendly Template View that guides you through creating a new SoDA template or through adding, modifying, and deleting commands in an existing SoDA template. The Template View is the easiest way to create or enhance a SoDA template.

Once you have used the Template View to add and modify the commands, you can then return to the template and make formatting changes, such as adding headings, lists, bullets, and so on.

Having a good understanding of your information as it exists within each domain and a detailed document plan will ensure that the SoDA template will yield the desired results after generation.

For more information, refer to *Using Rational SoDA for Word*.

Creating a Project Web Site for Your Artifacts

Customizing the Rational Unified Process begins by writing a development case. A development case should show how the generic Rational Unified Process applies to your organization and provide an overview of the process to be followed. The development case can be included on a customized Web site for your project, referred to as a project Web. Along with the development case, the project Web can present the following project elements:

- Project logo
- Project artifacts
- Project library
- Iteration workflow
- Discussion forum
- Tool information

Rational Unified Process provides a Web site template, the RationalProjectWebExample, which is installed when you install the Rational Unified Process. In the file system it is stored on the same level as the Rational Unified Process:

File Name	File Content
RationalProjectWebExample	Contains the project web example
RationalUnifiedProcess	Contains the Rational Unified Process

Make a copy of “RationalProjectWebExample” to build your own project web. For example:

Sample File Name	Suggested Content
MyProjectWeb	Contains your project’s web
RationalProjectWebExample	Contains the project web example
RationalUnifiedProcess	Contains the Rational Unified Process

Note: The RationalProjectWebExample folder must be placed at the same directory level as the Rational Unified Process. This is because there are hyperlinks in the RationalProjectWebExample that reference pages in the Rational Unified Process. If you decide to move the RationalProjectWebExample, the hyperlinks must be modified.

To start the project web example locate the file:

RationalProjectWebExample/index.htm

For more information regarding setting up a project Web including using Microsoft FrontPage, see the *RUP Tool Mentor*, “Creating your Project Web.”

Appendix

Requirements Workflow

