Rational® ClearQuest®

Introduction

VERSION: 2003.06.00 AND LATER

PART NUMBER: 800-026167-000

UNIX/WINDOWS EDITION

Rational®
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Third Party Notices, Code, Licenses, and Acknowledgements

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Preface

About This Manual

This manual provides a basic description of Rational ClearQuest. It also provides an overview of how to deploy ClearQuest in an organization, from planning and setting up a defect and change tracking process, through working on and managing defects. For instructions on how to install ClearQuest on Windows, see the *Installation Guide* for Rational Server Products and the *Installation Guide* for Rational Desktop Products. For instructions on how to install ClearQuest on UNIX, see the *Installation Guide* for Rational ClearQuest.

Where appropriate, this manual refers you to specific locations in the ClearQuest documentation for detailed information about individual procedures and concepts.

User Roles and the ClearQuest Documentation Set

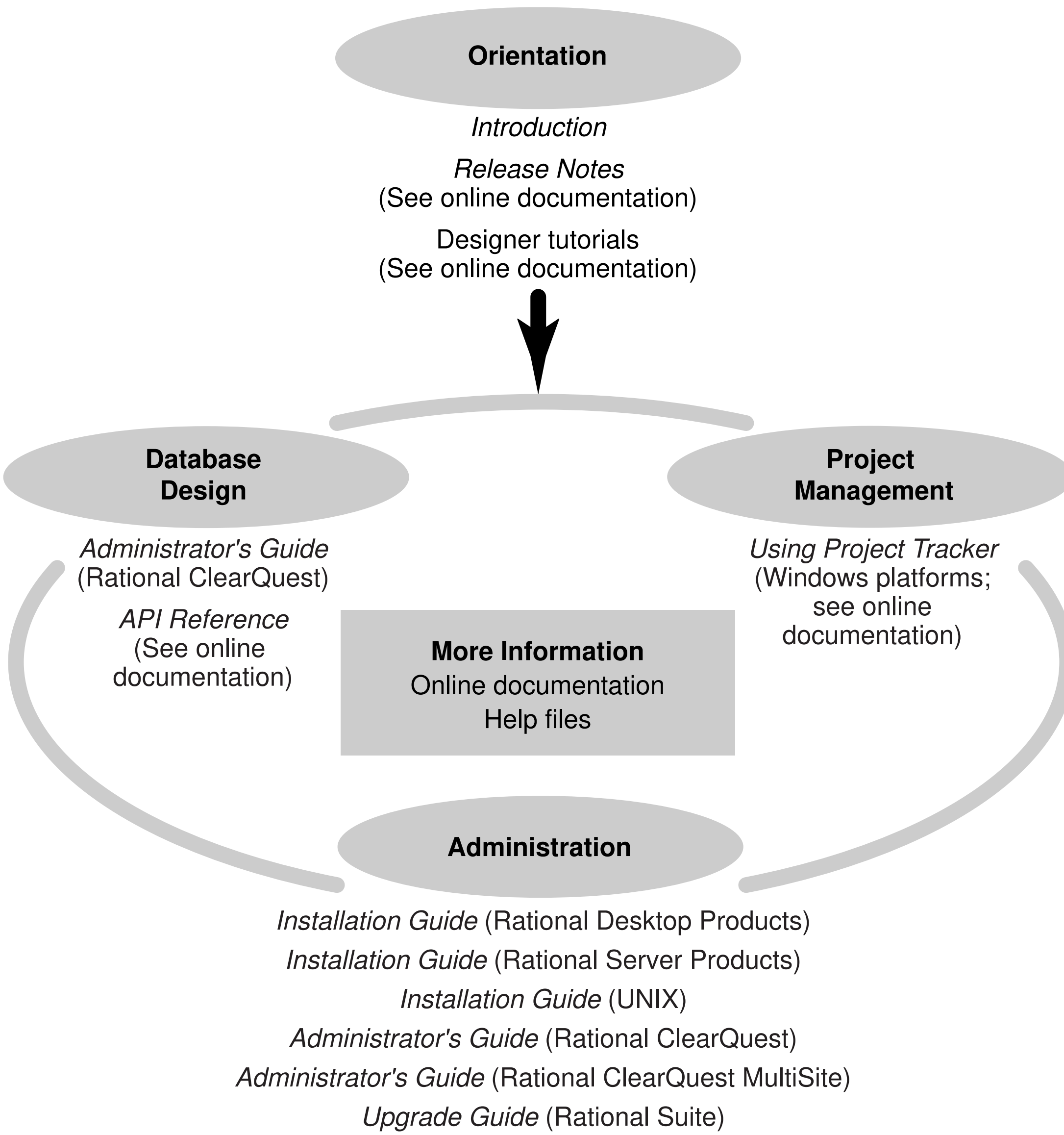
The documentation for ClearQuest consists of printed and online task-oriented information that supports ClearQuest administrators, schema designers, and client users. The information in this manual applies to these roles as follows:

Role	Typical tasks	Chapters to read
Administrator	Plans the change management process for an organization, creates and customizes ClearQuest schemas, maintains databases, and troubleshoots the change management system.	Chapter 1, *Overview of ClearQuest and ClearQuest MultiSite* Chapter 2, *Planning a Change Management Process* Chapter 3, *Administering and Customizing ClearQuest* Chapter 4, *Using ClearQuest*

Role	Typical tasks	Chapters to read
Designer	Designs and customizes schemas to fit the organization's change management process.	Chapter 1, *Overview of ClearQuest and ClearQuest MultiSite* Chapter 2, *Planning a Change Management Process* Chapter 3, *Administering and Customizing ClearQuest* Chapter 4, *Using ClearQuest*
Project Manager	Assigns change requests to members of the project team. Creates queries, charts, and reports to track progress.	Chapter 1, *Overview of ClearQuest and ClearQuest MultiSite* Chapter 4, *Using ClearQuest*
User	Creates, updates, transitions, and reports on change request records in a ClearQuest client interface.	Chapter 1, *Overview of ClearQuest and ClearQuest MultiSite* Chapter 4, *Using ClearQuest*

The Clear Quest Documentation Roadmap in the next section shows how the ClearQuest documentation set is organized to support these roles.

ClearQuest Documentation Roadmap



ClearQuest Integrations with Other Rational Products

Integration	Description	Where it is documented
ClearQuest- Base ClearCase	Associates change requests with versions of ClearCase elements.	ClearCase: *Developing Software* ClearCase: *Managing Software Projects* ClearQuest: *Administrator's Guide*
ClearQuest-PurifyPlus	Allows developers to invoke ClearQuest from PurifyPlus.	PurifyPlus Help ClearQuest: *Administrator's Guide*
ClearQuest- RequisitePro	Allows developers to invoke ClearQuest from RequisitePro and to associate requirements with ClearQuest change requests.	Rational Suite: *Administrator's Guide* ClearQuest: *Administrator's Guide*
ClearQuest-SoDA	Collects information from ClearQuest and presents it in various report formats.	*Using Rational SoDA for Word* *Using Rational SoDA for Frame* SoDA Help
ClearQuest- Test Manager	Allows developers to invoke ClearQuest from TestManager.	*Using Rational TestManager* ClearQuest: *Administrator's Guide*
ClearQuest-Robot	Allows developers to invoke ClearQuest from Robot.	Rational Robot User's Guide Rational Robot Help
ClearQuest-UCM	Links UCM activities to ClearQuest records.	ClearCase: *Developing Software* ClearCase: *Managing Software Projects* ClearQuest: *Administrator's Guide*

Online Documentation

Rational ClearQuest includes online documentation, as follows:

Help System: Use the **Help** menu, the **Help** button, or the F1 key.

Reference Pages: On Windows, to display a reference page for Rational ClearQuest MultiSite, at the command prompt type **multiutil man** *command-name*.

API Reference: Click **Start > Programs > Rational Software > Rational ClearQuest > Rational ClearQuest API Reference**.

Tutorial: Click **Start > Programs > Rational Software > Rational ClearQuest > ClearQuest Designer Tutorial**.

PDF Manuals: Navigate to:

- On UNIX, *cquest-home-dir*/doc/books
- On Windows, *cquest-home-dir*\doc\books

Customer Support

If you have any problems with the software or documentation, please contact Rational Customer Support by telephone, fax, or electronic mail as described below. For information regarding support hours, languages spoken, or other support information, click the **Support** link on the Rational Web site at **www.rational.com**.

Your location	Telephone	Facsimile	Electronic mail
North America	800-433-5444 toll free or 408-863-4000 Cupertino, CA	408-863-4194 Cupertino, CA 781-676-2460 Lexington, MA	**support@rational.com**
Europe, Middle East, and Africa	+31-(0)20-4546-200 Netherlands	+31-(0)20-4546-201 Netherlands	**support@europe.rational.com**
Asia Pacific	61-2-9419-0111 Australia	61-2-9419-0123 Australia	**support@apac.rational.com**

1 Overview of ClearQuest and ClearQuest MultiSite

Rational ClearQuest is a customizable defect and change tracking system designed for the dynamic environment of software development. With ClearQuest, you can manage every type of change activity associated with software development, including enhancements, defects, and documentation modifications.

ClearQuest shortens development cycles by unifying your entire team in the process of managing software change requests:

- Development engineers can identify and prioritize action items that pertain to their section of code.
- Technical writers can locate development change requests that require enhancements to the documentation, as well as change requests pertaining to the documentation itself.
- Test engineers can record the defects they find and track the status and resolution of change requests to verify software quality.
- Project leaders and managers can get information at a glance to help them allocate development resources, streamline work flow, and accurately determine release dates.
- Administrators can customize ClearQuest to fit an organization’s process and workflow by integrating it with existing tools.

Rational ClearQuest

ClearQuest consists of several components that work together in a client-server environment. ClearQuest users access your databases by using Windows or UNIX desktop clients, or by using a Web browser to access Web clients hosted on servers running the Microsoft Internet Information Server (IIS). Your ClearQuest databases can be hosted on either Windows or UNIX servers, but the ClearQuest Administration Tools can only be run on Windows. For more information about the client and server components of ClearQuest, see Table 1.

Table 1 ClearQuest Components

Component	Used by	Tasks	For more information
Client user interfaces			
ClearQuest Windows client	Everyone	Submit, modify, and track change requests, and analyze project progress by creating and updating queries, charts, and reports.	See *Using the ClearQuest Windows Client* on page 23, or see the ClearQuest Help.
ClearQuest UNIX client	Everyone	Submit, modify, and track change requests, and analyze project progress by creating and updating queries, charts, and reports.	See *Using the ClearQuest UNIX Client* on page 24, or see the ClearQuest Help.
ClearQuest Web client	Everyone	Access ClearQuest across multiple platforms by using Netscape Navigator, Internet Explorer, or Mozilla to submit, modify, and track change requests, and support project analysis by creating and updating queries and reports.	See *Using the ClearQuest Web Client* on page 25, or see the ClearQuest Help.
Administrative tools			
ClearQuest Designer	ClearQuest administrator and schema designer	Customize ClearQuest, manage ClearQuest schemas and databases, and administer users and user groups.	See *Designing and Customizing Schemas* on page 15, or see the information about customizing a schema in the *Administrator's Guide* for Rational ClearQuest.

Table 1 ClearQuest Components (Continued)

Component	Used by	Tasks	For more information
ClearQuest Maintenance Tool	Everyone	Set up and connect to the schema repository during installation and when you upgrade to a new ClearQuest version.	See *Designing and Customizing Schemas* on page 15, or see the information about working with ClearQuest schemas in the *Administrator's Guide* for Rational ClearQuest.
Rational E-Mail Reader	ClearQuest administrator	Enable ClearQuest users to submit and modify records by e-mail.	See *Administering ClearQuest E-Mail* on page 20, or see the information about administering ClearQuest e-mail in the *Administrator's Guide* for Rational ClearQuest.
ClearQuest User Administration Tool	ClearQuest administrator	Create users and user groups, set user IDs and passwords, assign users to user groups, import and export users and user groups between schemas, subscribe users and user groups to databases, and search for users.	See the information about administering users in the *Administrator's Guide* for Rational ClearQuest.
ClearQuest Import Tool	ClearQuest administrator	Import data, including records, history, and attachments from other change request systems and between ClearQuest databases.	See *Exporting and Importing ClearQuest Data* on page 20, or see the information about importing data in the *Administrator's Guide* for Rational ClearQuest.

Table 1 ClearQuest Components (Continued)

Component	Used by	Tasks	For more information
ClearQuest Export Tool	ClearQuest administrator	Export ClearQuest data from one ClearQuest user database to another user database.	See *Exporting and Importing ClearQuest Data* on page 20, or see the information about exporting data in the *Administrator's Guide* for Rational ClearQuest.
On Windows, ClearQuest MultiSite Administration Tools On UNIX, **multiutil**	ClearQuest MultiSite Administrator	Create and manage replicas of schema repositories and user databases.	See the *Administrator's Guide* for Rational ClearQuest MultiSite.

Ready-to-Use Defect Tracking System

ClearQuest includes predefined schemas that provide ready-to-use defect and change tracking processes and integrations with various Rational Software products. You can use ClearQuest schemas as is or customize them to fit your organization's workflow. For a list of ClearQuest predefined schemas, see *Selecting a ClearQuest Schema* on page 16.

Support for Your Development Environment

ClearQuest provides the following support for your software development environment:

- Lets you consistently manage a defect tracking process within a specific development project or throughout the entire company.
- Integrates with Rational ClearCase and Microsoft Visual SourceSafe so you can associate change requests directly with changes in your evolving software.
- Integrates with Rational TeamTest, VisualTest, Purify, PureCoverage, and Quantify, letting you submit change requests to ClearQuest directly from these testing tools.
- Supports an integration with Microsoft VisualStudio 6 and VS.Net.
- Supports an integration with Seagate's Crystal Reports 8.5 Professional Edition so you can create custom reports from ClearQuest data.

- Lets you integrate with other standard Windows tools, such as Microsoft Excel, Word, and Project, through an advanced COM interface.
- Provides access to Rational Unified Process through the ClearQuest **Help > Rational Extended Help** menu.
- Supports Sybase SQL Anywhere (included with ClearQuest), Microsoft Access, Microsoft SQL Server, Oracle relational databases, and IBM DB2.
- Supports Microsoft IIS Web server.

ClearQuest MultiSite

Rational ClearQuest MultiSite adds a powerful capability to Rational ClearQuest. With MultiSite, developers at different locations can use the same defect-tracking database set (a schema repository and its associated user databases). Each site has its own replica set (copy of the database set). At any time, changes made in one replica can be sent in update packets to other replicas. The update process can be automated or can be started manually with a command.

An organization can use MultiSite to distribute independent, but related, development efforts across multiple cities, nations, or continents. For example, a company in the United States has development and testing sites in India, Argentina, Japan, and Australia. Because it is not practical for all engineers to access the defect-tracking databases in the United States, the company uses MultiSite to distribute the development.

MultiSite can also be used at a single geographical location to let independent groups work with the same development data or to be a backup mechanism. For example, a company that wants extra reliability for backups can create local replicas for a defect-tracking database set. For more information about ClearQuest MultiSite, see the *Administrator's Guide* for Rational ClearQuest MultiSite.

Defining ClearQuest Schemas, Schema Repositories, Databases, and Connections

When you use ClearQuest, you work with a variety of objects, including ClearQuest databases, schemas, schema repositories, database sets, and connections. The following sections define these components and explain how they work together as part of a change management system.

Schemas

A ClearQuest schema is a complete description of the process model for one type of change request. This includes a description of the states and actions of the model, the structure of the data that can be stored about the individual change request, hook code or scripts that can be used to implement business rules, and the forms and reports used to view and input information about the change request.

The schema is a pattern or blueprint for ClearQuest user databases. When you create a database to hold user data, the database follows the blueprint defined in a schema. However, a schema is not a database itself: it does not hold any user data about change requests, and it does not change when users add or modify data in the user databases.

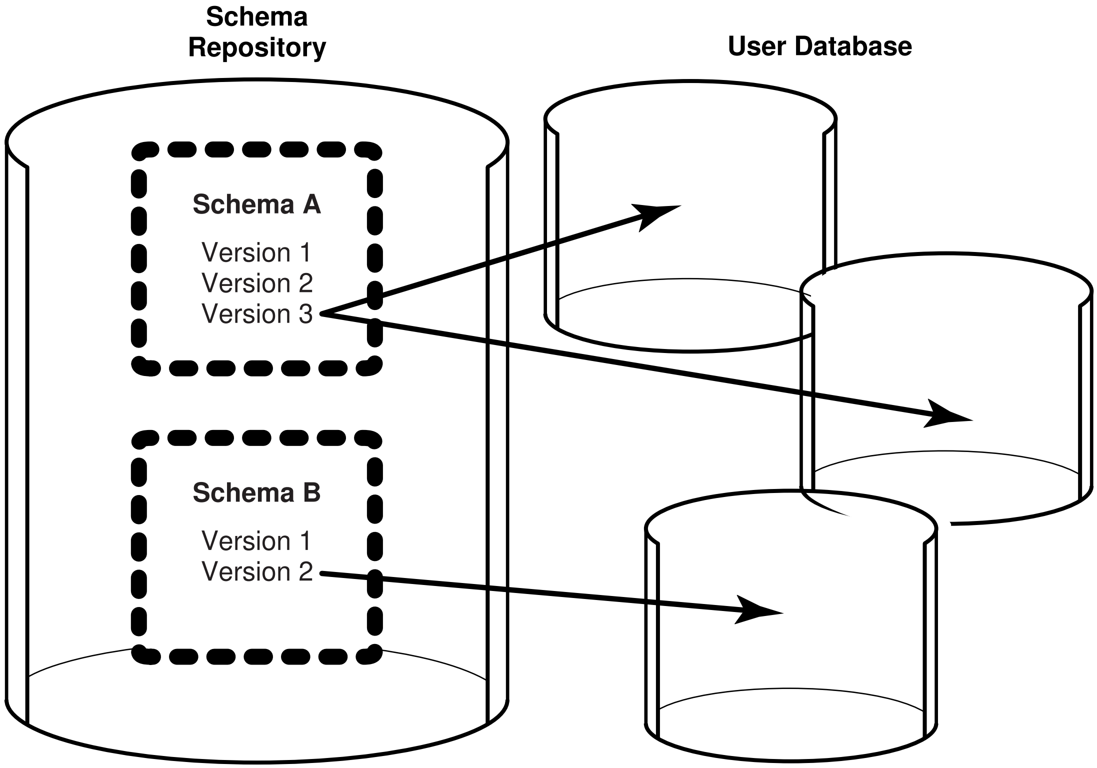
Schema Repositories

ClearQuest stores schemas in a special type of database called a *schema repository*, which is also sometimes referred to as a *master repository* or a *master database*.

A schema repository can store multiple schemas, for example, one schema for defect change requests and another schema for feature enhancement change requests. In Figure 1, the schema repository stores both Schema A and Schema B.

The schema repository can also include multiple versions of the same schema. A new version is created each time changes are made to a schema, for example, by changing an action or adding a new report. In Figure 1, the schema repository stores three versions of Schema A and two versions of Schema B.

Figure 1 Schema Repositories and Schemas



Databases

A *database* in ClearQuest is a collection of user data for one process model.

You associate each database with a specific version of a specific schema. For example, in Figure 1 each user database uses a version of a schema stored in the schema repository. The schema defines the way the data is stored and changed in that database (that is, the database is an instance of a version of a schema). Users change data in the databases when they add or modify information about change requests, but these changes have no effect on the schema.

Databases contain a record for each change request. As the change request moves through its lifecycle, the data stored in this record changes accordingly.

You can create and associate multiple databases with a single schema. For example, if you have three projects that use the same process model for correcting defects, you could create one database for each project and associate all three with the same schema. In Figure 1 two user databases use Version 3 of Schema A.

Connections

One schema repository and all of its associated user databases is called a *connection* or a *database set* (see Figure 1). Typically all of the schemas and databases for one project will be included in one connection. However, one connection can support multiple projects, or one project can have multiple connections.

For a complete description about how to work with schemas and databases, see the *Administrator's Guide* for Rational ClearQuest.

Planning a Change Management Process

2

This chapter provides a brief explanation of a change management system as well as an overview of the steps an administrator should follow when planning a change management process. For more information, see the *Administrator's Guide* for Rational ClearQuest.

After you outline your change management process, you can customize one of the predefined Rational ClearQuest schemas, or create a new schema to best implement your process. For more information, see Chapter 3, *Administering and Customizing ClearQuest*.

Understanding Change Management Systems

When you use a change management system in your organization, you can implement and manage consistent change management process models.

For each change request type, you can do the following:

- Define a process model with states, actions, and rules.
- Program customized rules that control when and how actions can be performed.
- Create forms that let participants in the system access change requests, communicate with each other, and perform appropriate actions.
- Build reports and queries that give managers visibility into the status of individual change requests, classes of change requests, and all of the change requests associated with a project.

A change management system ensures that individual change requests go through a change request lifecycle according to the correct policies and procedures of the organization, while simplifying the work of the development team.

A change management system also provides management tools to assign work and manage workloads, track the progress of projects, improve teamwork, and continuously improve processes and products.

Identifying Scope

The first step in planning your change management process is to determine the scope of the process to ensure that its execution will be complete, concise, and effective. You may decide to apply the process to a single project team, one department, or multiple departments, but the process should include all of the groups directly affected by change requests.

Constructing a Change Management Process Model

A change management process model (also called a *state transition model*) is a systematic representation of the possible steps in one change request lifecycle. This model defines the lifecycle in terms of the *states* that the change request passes through, the *actions* that are taken to move between the states, and the *rules* that define when and how the actions can be taken.

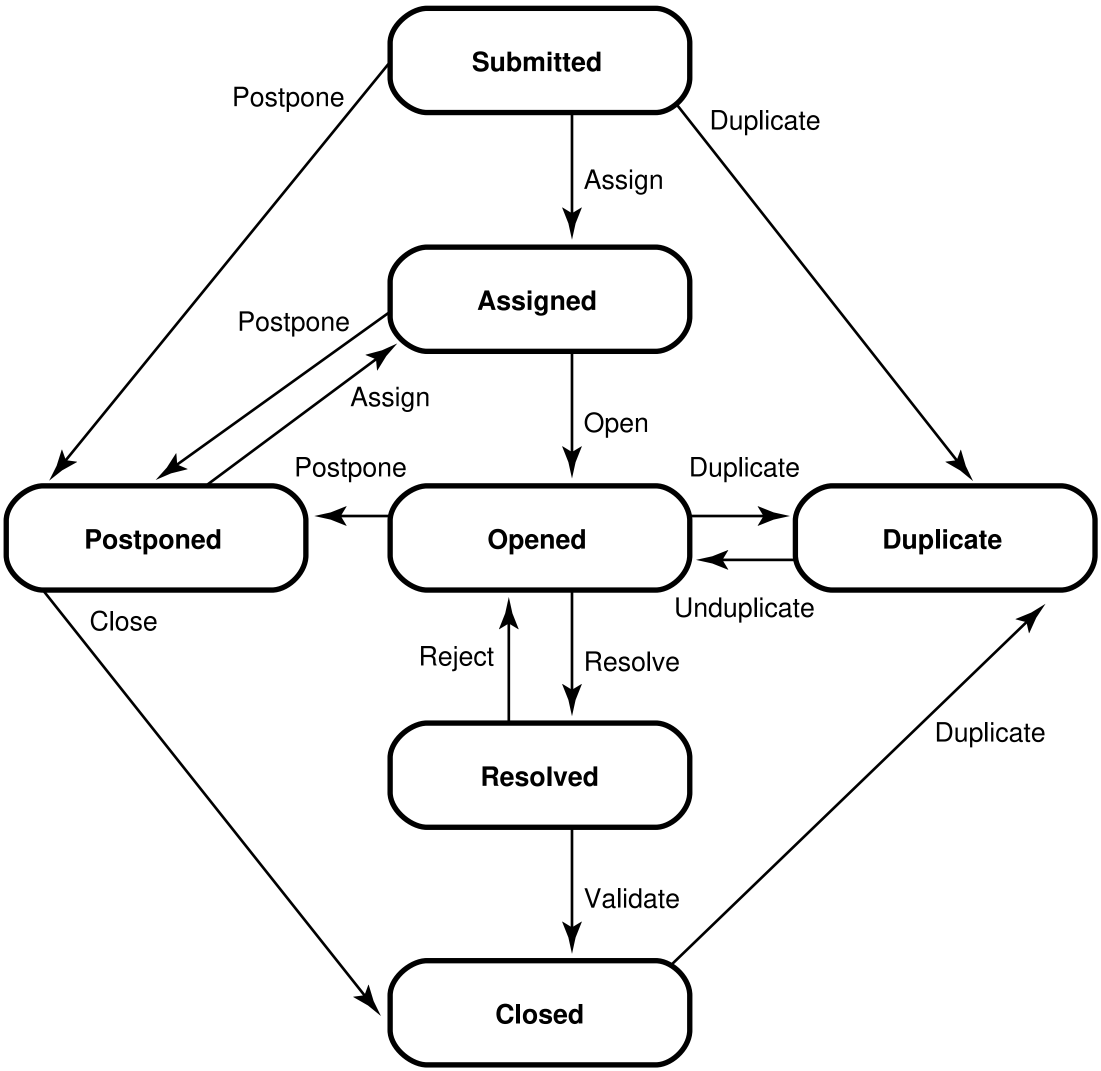
The *state* of a change request is its current status. Typical states include submitted, assigned, opened, postponed, duplicated, resolved, and closed.

An *action* is an activity that moves a change request from one state to another (a state transition). Typical actions include assign, reject, open, postpone, duplicate, validate, resolve, and close.

Rules define when and how an action can be taken. For example, the ability to use a Validate action to move a change request from a Resolved state to a Closed state might be restricted to quality assurance engineers.

A process model can be illustrated in a diagram, as shown in Figure 2. In this diagram states are shown as ovals and actions are represented by arrows.

Figure 2 Change Management Process Model



Identifying Key Roles

The change management process that you construct affects many groups and individuals in your organization. You must identify these key roles in your process and get their approval before implementing the change management system. The key roles in every change management process differ, but Table 2 lists roles that are common in many organizations.

Table 2 Common Key Roles

Role	Change management responsibility
Customer	Uses the product or service your organization provides. Typically, customers are the source of most change requests. The success of the product or service depends on how these requests are managed.
Change Control Board (CCB)	Reviews the incoming change requests and determines how each individual request will be handled.
Manager	Requires information to help assign and schedule work related to the change request.
Solution Provider (Developer)	Receives the change requests from the CCB. Develops the proper solution to resolve the change request.
Tester	Evaluates the resolution of a change request. It is the tester's responsibility to ensure that the resolution implemented by the developer provides a satisfactory answer to a change request.
Technical Writer/Training Course Developer	Requires information about documentation impacted by the change request resolution.

Designing a Workflow Diagram

After you define the key roles in your change management system, you need to create a workflow diagram to indicate how each of the roles will interact with the change request throughout its lifecycle. A workflow diagram is a visual representation of the relationships between the roles, tasks, and artifacts in your change management system.

Table 3 shows a text-based example of a change request's lifecycle in a product development organization. Creating a similar table may help you to design your workflow diagram.

Table 3 Change Request Lifecycle

Team Member	Role in the change request lifecycle
User	Submit a change request
Change Control Manager	Review and accept the change request
Project Manager	Assign and schedule work
Engineer	Perform the work to resolve the change request
Tester	Verify the solution in a test build
Systems Integrator	Verify the changes in a release build

Of course, the lifecycle of a change request can be more complicated than the one shown in Table 3. Based on the key roles you defined for your system, there may be more (or fewer) parties involved, and the change request might be rejected, revised, reassigned, postponed, duplicated, and otherwise modified or rerouted.

Deploying and Enforcing the Change Management Process

In order to deploy and maintain your change management process successfully, you must make sure to enforce all of the rules and policies defined by your change management process model.

To minimize interference with change management operations, you should refrain from frequently revising the system. When it is necessary to revise the existing change management process, you should:

- Develop a project plan to document the details of changes.
- Get sign-offs from all affected teams.
- Test the system thoroughly before it goes live.

Administering and Customizing ClearQuest

3

This chapter is for Rational ClearQuest administrators and schema designers, or anyone who is responsible for performing ClearQuest administrative or customization tasks. It provides brief descriptions of the tools you use to perform administrative or customization tasks on Windows, including:

- Designing and customizing a ClearQuest schema.
- Working with schema repositories.
- Exporting ClearQuest data.
- Importing ClearQuest data.
- Sending e-mail notifications.

This chapter also includes sections that describe the UNIX and Web methods of administering ClearQuest.

Before you read this chapter, you should be familiar with the concepts of schemas, schema repositories, databases, and connections described in *Defining ClearQuest Schemas, Schema Repositories, Databases, and Connections* on page 5.

For complete information about administering and customizing ClearQuest, including a description of how to get your ClearQuest users up and running, see the *Administrator's Guide* for Rational ClearQuest. To take the ClearQuest tutorial, click **Start > Programs > Rational Software > Rational ClearQuest > ClearQuest Designer Tutorial**.

Designing and Customizing Schemas

The ClearQuest Designer is a client/server tool included with ClearQuest that you can use to perform many administrative and customization tasks. As a ClearQuest administrator or schema designer, you can use the ClearQuest Designer to browse, design, and modify a schema in a schema repository. Creation and modification of a schema may include:

- Defining the layout of data.
- Building a process model for each change request type.

- Adding programming for the process models.
- Creating forms, charts, and reports.

You can also use the ClearQuest Designer to:

- Create a test database to examine the modified schema before checking it in.
- Create a new user database.
- Upgrade a user database with the latest version of a schema.
- Create and modify user accounts and permissions with the ClearQuest User Administration Tool.

Other members of the development team typically do not have permission to work with schemas. However, you can assign them permissions to make specific changes such as modifying queries and reports.

Note: You can also access the ClearQuest User Administration Tool from the Windows **Start** menu by clicking **Start > Programs > Rational Software > Rational ClearQuest > ClearQuest User Administration**.

Starting the ClearQuest Designer

To start the ClearQuest Designer:

1. Click **Start > Programs > Rational Software > Rational ClearQuest > Rational ClearQuest Designer**.

   ClearQuest provides a default user name, **admin**, that you can use to get started. Do not type a password. The **admin** user account is set up with the access privileges you need to perform all ClearQuest administrator functions. To change the **admin** account, click **Tools > User Administration**, select the **admin** user, and click **Edit**.

   For more information about user-access privileges, see the information about administering users in the *Administrator's Guide* for Rational ClearQuest.

2. In the Open Schema dialog, check out a schema if you are planning to modify it and click **Finish**; otherwise click **Cancel** to continue.

Selecting a ClearQuest Schema

Table 4 lists the predefined schemas that are included with Rational ClearQuest. ClearQuest schemas consist of various packages that provide specific functionality. You can add individual packages to an existing ClearQuest schema or to your own customized schema. For complete descriptions of ClearQuest schemas and packages, see the *Administrator's Guide* for Rational ClearQuest.

Table 4 Predefined Schemas

Schema	Description
AnalystStudio	Compatible with Rational Suite Analyst Studio. Contains customization for use with Rational RequisitePro.
Blank	Contains only system fields. Use this schema to create a schema from scratch.
Common	Contains metadata that is common to all ClearQuest schemas.
DefectTracking	Contains the fields necessary to start using ClearQuest to track defects in a software development environment.
DevelopmentStudio	Compatible with Rational Suite DevelopmentStudio. Contains fields and rules that work with Rational Purify, Quantify, and PureCoverage.
Enterprise	For use with Rational Suite EnterpriseStudio. Contains fields and hooks that work with all Rational products.
TestStudio	Compatible with Rational Suite TestStudio. Contains fields and rules that work with Rational TeamTest, RequisitePro, Purify, Quantify, and PureCoverage.
UnifiedChangeManagement	Supports the UCM process by providing integration with Rational ClearCase.

Customizing a Schema

When you use ClearQuest, the process of working with a record, along with the appearance of the record form and fields, is defined by the ClearQuest schema. As a ClearQuest administrator or designer, you can create a ClearQuest schema that best implements the change management process planned for your organization. For more information, see Chapter 2, *Planning a Change Management Process*.

You can use one of the schemas provided with ClearQuest as is, customize an existing schema, or create a new schema from scratch. Whichever option you choose, you use the ClearQuest Designer to perform the following schema modification tasks:

- Adding states to your change request lifecycle.

- Adding actions to transition between states.
- Adding fields to your record forms.
- Defining the behavior of fields (for example, read-only, mandatory, or optional fields).
- Creating Visual Basic or Perl field hooks or action hooks to help enforce the rules of your change management system. For more information, see the *API Reference* for Rational ClearQuest.

Checking Out a Schema

To customize a schema, you must first check it out of the schema repository. If you did not check out the schema when you opened the ClearQuest Designer, click **File > Open Schema**. For complete instructions on working with schemas, including setting up a test database to test your schema customizations, see the *Administrator's Guide* for Rational ClearQuest.

Checking In a Schema

At any time while working on a schema, you can click **File > Test Work** to test your work in progress. This upgrades the test database with your latest changes, providing a quick way to test your changes in the ClearQuest client without affecting your production user database.

When you are satisfied that your schema changes work correctly, click **File > Check in** to check the schema into the schema repository. After the schema is checked in, you can use it to upgrade your user database. Click **Database > Upgrade Database**. ClearQuest prompts you to back up the schema repository and the database before upgrading.

For more information about working with ClearQuest schemas, see the *Administrator's Guide* for Rational ClearQuest.

The ClearQuest Designer Help contains detailed information about modifying your schemas.

Working with Schema Repositories

After you create or customize a schema repository, you can use the ClearQuest Maintenance Tool to perform the following tasks:

- Create and manage schema repositories and connections.
- Create sample databases.

- Move a schema repository.
- Upgrade schema repositories and user databases to a new version of ClearQuest.

Creating and Connecting to a Schema Repository

You use the ClearQuest Maintenance Tool to create a new schema repository and set up a connection to it and its associated user databases. Note that you must first create the vendor databases to use for your schema repository and user databases.

You can also use the Maintenance Tool to change the connection information for an existing schema repository after it is moved or modified.

For more information about creating and connecting to schema repositories, click **Help** in the ClearQuest Maintenance Tool or see the *Administrator's Guide* for Rational ClearQuest.

Connection Profiles

As a ClearQuest administrator, you can save database connection settings for later use by exporting a connection profile. When you modify schema connection information, or create a new schema, users can import the connection profile rather than entering or modifying the connection information. Both ClearQuest administrators and ClearQuest client users can import and export connection profiles for later use.

For more information about connection profiles, click **Help** in the ClearQuest Maintenance Tool.

Moving a Schema Repository

You can use the ClearQuest Maintenance Tool to move your schema repository to a new location, or modify it to use a different vendor database. If you use your vendor database tools to move a schema repository, the connection you have set up to the schema repository will be lost. In this case you will need to edit the connection information for the schema repository.

For more information about moving a schema repository and editing connection information, see the ClearQuest Maintenance Tool Help or see the *Administrator's Guide* for Rational ClearQuest.

Upgrading to a New Version of ClearQuest

When you install a new version of ClearQuest, you can upgrade all user databases and schema repositories (whether or not you are connected to them) to use this new version.

For more information about upgrading schema repositories and user databases to a new version of ClearQuest, see the *Upgrade Guide* for Rational Suite (Windows) or the *Installation Guide* for Rational ClearQuest (UNIX).

For more information about working with schema repositories, see the ClearQuest Maintenance Tool Help.

Exporting and Importing ClearQuest Data

The ClearQuest Export Tool and the ClearQuest Import Tool are utilities that you and ClearQuest users can use to export and import data to and from ClearQuest databases and external files.

To open the ClearQuest Export Tool, click **Start > Programs > Rational Software > Rational ClearQuest > ClearQuest Export Tool**.

To open the ClearQuest Import Tool, click **Start > Programs > Rational Software > Rational ClearQuest > ClearQuest Import Tool**.

For more information about exporting and importing ClearQuest data, see the ClearQuest Export Tool and ClearQuest Import Tool Help, or the *Administrator's Guide* for Rational ClearQuest.

Administering ClearQuest E-Mail

Rational ClearQuest supports several e-mail capabilities including:

- **Automatic e-mail notification:** Send e-mail notification to users or user groups when specific events occur, such as being assigned a change request.
- **Submitting and modifying defects by e-mail:** Users can submit and modify records by e-mail without using the ClearQuest clients.
- **Round-trip e-mail:** Combine e-mail notification with e-mail submission to update records. For example, when a user receives an e-mail notification that a record has been submitted, that user can respond with an e-mail message that appends notes to the record in the database.
- **E-mail notification action hook:** Use an action notification hook to have ClearQuest send an e-mail message when a user completes a specific action.

ClearQuest includes a Rational E-Mail Reader service, e-mail rules, and e-mail options that you and your users must configure in order to take advantage of these features. For more information about setting up the ClearQuest e-mail capabilities, and using the Rational E-Mail Reader service, see the *Administrator's Guide* for Rational ClearQuest.

Administering ClearQuest on the Web

You can configure ClearQuest on a Web server to let users with an Internet browser perform many of the same functions available through the ClearQuest Windows and UNIX clients. ClearQuest Web supports Active Server Pages (ASP), and must be hosted on a Web server running the Microsoft Internet Information Server (IIS).

For more information about the ClearQuest Web client, see the *Administrator's Guide* for Rational ClearQuest, or the ClearQuest Web client Help.

Administering ClearQuest on UNIX

You have the option of letting users work with a UNIX installation of ClearQuest. There are several things to keep in mind when planning a UNIX installation, including:

- The ClearQuest Installation for UNIX does *not* include the ClearQuest Designer, ClearQuest Maintenance Tool, ClearQuest Import Tool, or ClearQuest Export Tool.
- A ClearQuest Windows installation with ClearQuest Designer and the ClearQuest Maintenance Tool is required to configure, customize, and administer schemas and databases within the UNIX environment.
- A ClearQuest Windows installation with the ClearQuest Import Tool and ClearQuest Export Tool is needed to import and export data from external files.

For more information about running ClearQuest on UNIX, see the *Administrator's Guide* for Rational ClearQuest.

Using ClearQuest 4

This chapter contains information for all Rational ClearQuest users, including administrators and schema designers. It introduces the basic concepts of using the ClearQuest Windows, UNIX, and Web clients, including information about how to:

- Submit change requests
- Work with change requests
- Track change requests
- Gather project metrics

If you are reading this chapter as a ClearQuest administrator, look for **Administrator Tip** next to suggestions for customizing ClearQuest to fit your organization's workflow.

For more information about planning a change management process, see Chapter 2, *Planning a Change Management Process*. For more information about administrative tasks, see Chapter 3, *Administering and Customizing ClearQuest*.

Note: The examples in this chapter use the **DefectTracking** schema and **SAMPL** database that are included with ClearQuest. This represents only one model for using ClearQuest. For information about additional schemas, see *Selecting a ClearQuest Schema* on page 16.

Using the ClearQuest Windows Client

Rational ClearQuest provides a Windows client that you use to access a user database and work with change requests:

To start using the ClearQuest Windows client:

1 Click **Start > Programs > Rational Software > Rational ClearQuest**.

2 Log on to the ClearQuest Windows client. You can use the ClearQuest predefined user name, **admin**, to get started. Do not type a password.

3 Select a database from the **Database** list. Select the **SAMPL** database to experiment with a working user database that already contains change request records.

Note: If the **Database** list is empty, contact your ClearQuest administrator, or see the following Administrator Tip.

For more information about the ClearQuest Windows client, see the ClearQuest Help.

Administrator Tip: During installation, you create and configure user databases for your site; their names appear in the **Database** list when users log in. For more information about creating and configuring user databases, see the *Installation Guide* for Rational Server Products (Windows) or the *Installation Guide* for Rational ClearQuest (UNIX).

After installation, you use ClearQuest Designer to set up user login accounts and to define user access privileges. For more information about setting up user login accounts, see the information about administering users in the *Administrator's Guide* for Rational ClearQuest.

Using the ClearQuest UNIX Client

Rational ClearQuest provides a UNIX client that you can use to perform most ClearQuest operations from a UNIX machine.

To start using the ClearQuest UNIX client:

1 At a command prompt, set the ClearQuest home environment variable ($CQ_HOME):

   cquest-home-dir/**cq_setup.sch**

2 To start the UNIX client, type **clearquest**.

3 In the Schema Repository dialog box, select a schema and click **OK**.

4 Log on to the ClearQuest UNIX client. You can use the ClearQuest predefined user name, **admin**, to get started. Do not type a password.

5 Select a database from the **Database** list.

   Note: If the **Database** list is empty, contact your ClearQuest administrator, or see the following Administrator Tip.

   Select the **SAMPL** database to experiment with a working user database that already contains many change request records.

For more information about the ClearQuest UNIX client, see the ClearQuest Help.

Administrator Tip: During installation, you create and configure user databases for your site; their names appear in the **Database** list when users log in. For more information about creating and configuring user databases, see the *Installation Guide* for Rational Server Products (Windows) or the *Installation Guide* for Rational ClearQuest (UNIX).

Several administrator tools, including the ClearQuest Designer and the ClearQuest Maintenance Tool, are not available with a UNIX installation of ClearQuest. For more information about the differences between Windows and UNIX installations of ClearQuest, see the *Administrator's Guide* for Rational ClearQuest.

Using the ClearQuest Web Client

Rational ClearQuest includes a Web-based client interface. You can use the ClearQuest Web client with a Web browser to:

- Submit change request records.
- View and modify change request records.
- Run predefined queries.
- Create and run new queries.
- Create and run new reports.
- View predefined charts and reports.

To start using the ClearQuest Web client:

1. Navigate to the ClearQuest Web URL provided by your ClearQuest administrator.
2. Log on to the ClearQuest Web client. You can use the ClearQuest predefined user name, **admin**, to get started. Do not type a password.
3. If you are set up to access multiple schema repositories, select a schema repository from the **Schema Repository** list.
4. Select a database from the **Database** list, or type a database name in the text field.

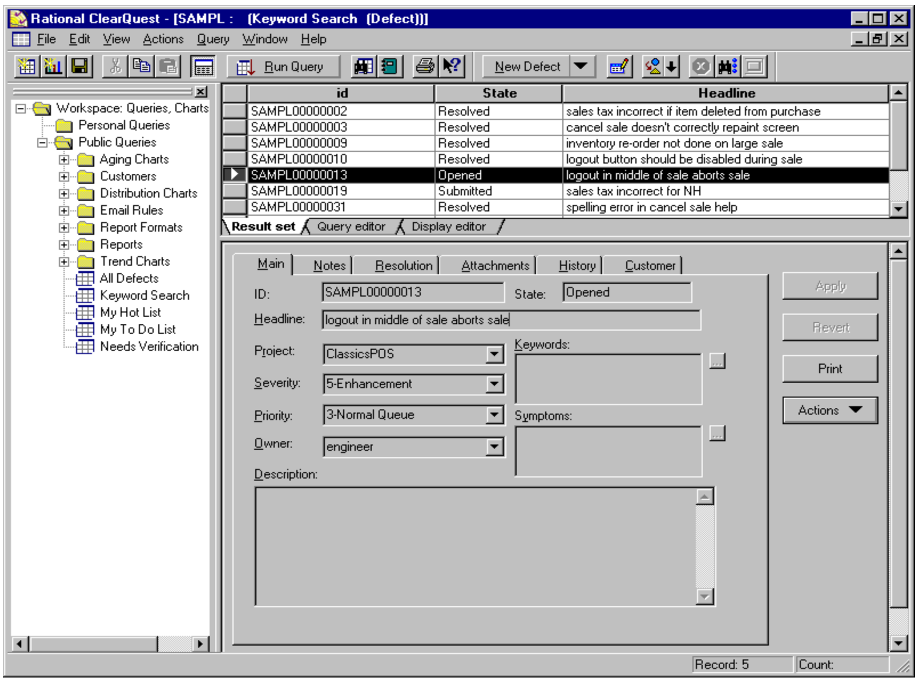
For more information about the ClearQuest Web client, see the ClearQuest Help.

Administrator Tip: As a ClearQuest administrator, you set up and customize the ClearQuest Web client, control user access, and customize ClearQuest Web hooks. For more information about these tasks, see the *Administrator's Guide* for Rational ClearQuest.

ClearQuest Client Interfaces

The three ClearQuest client interfaces consist of a Workspace, a Query Builder, and a Record form. In the ClearQuest Windows and UNIX clients, all three components are available on the screen at the same time. In the Web client, the Workspace is always visible and the Query Builder and Record form are displayed based on the user's selections. See Figure 3 for an example of the ClearQuest Windows and UNIX client interface and its components.

Figure 3 ClearQuest Client Interface



Workspace

The Workspace, located in the leftmost pane of all three ClearQuest client interfaces, lists the queries, charts, and reports that are available.

The **Public Queries** folder in the Workspace contains the queries, charts, and reports that are installed with ClearQuest, as well as any that your ClearQuest administrator creates. In the Windows and UNIX clients, you can drag any query, chart, or report to your **Personal Queries** folder and modify it to suit your needs.

Query Builder

The Query Builder, located in the top right pane of the ClearQuest Windows and UNIX client interfaces, displays the results of a query. In the ClearQuest Web interface, the Query Builder is located in the right half of the window when the client is started. Click a record to display its data in the Record form. In the UNIX or Windows clients, you can use the **Query editor** tab to change the query filter requirements and the **Display editor** tab to change the columns displayed in the query result set. To modify a query in the Web client, click **Operations**.

Record Form

The Record form, located below the Query Builder in the Windows and UNIX clients, displays all of the data for a specified record. In the Web client, the Record form is located in the right pane of the window when a record is selected from the Query Builder.

For more information, see the ClearQuest Help.

Working with Change Request Records in the Windows and UNIX Clients

You work with a change request record by submitting it and then moving it through predefined stages, or *states*. In each state, you can perform actions such as modifying the record or moving it to another state. After submitting a change request, click the **Actions** button on the Record Form to list the actions that you can perform on the record while it is in the current state.

The following sections describe a typical workflow for a change request record with the Windows or UNIX client. For information about working with change requests with the ClearQuest Web client, see the ClearQuest Help.

Submitting a Change Request

You begin using ClearQuest by submitting a change request. This creates a record in the user database that everyone on the team can track as your software development and testing evolves.

To submit a change request, click **Actions > New** and select a record type. The types of records available depend on the schema that you are using.

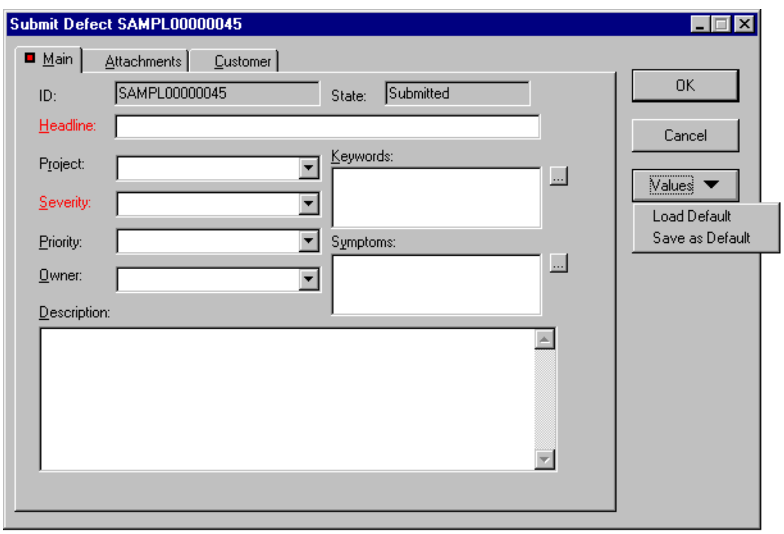
Submit Defect Form

The defect record type is a type of change request used in many ClearQuest implementations. To submit a defect and open the Submit Defect form, click the **New Defect** button on the toolbar, or click **Actions > New** and select the defect record type.

You use the tabs on the Submit Defect form to describe the change request in detail. Some tabs contain fields that are mandatory. For example, the **Headline** field requires a short sentence describing the problem, and you must select a value for the **Severity** field. Tabs with mandatory fields are marked with a red square and the mandatory fields themselves are labeled in red.

You can save frequently used field values as defaults so you do not have to re-enter them each time you submit a change request. Fill in the fields you want to save and click **Values > Save as Default**. When you create a new defect you can click **Values > Load Default** to populate the Submit Defect form with the default values. See Figure 4 for an example of the Submit Defect record form.

Figure 4 Submit Defect Form



Note: You can submit a change request directly to ClearQuest from Rational TeamTest, Purify, PureCoverage, Quantify, and Visual Test. You can also use ClearQuest Web and ClearQuest UNIX to submit and modify change requests or submit change requests by e-mail.

Administrator Tip: As a ClearQuest administrator, you can create additional record types. For example, you might want separate record types for hardware defects, software defects, and enhancement requests. You can also customize record forms by adding tabs and fields and defining their behavior. For more information about working with forms, see the *Administrator's Guide* for Rational ClearQuest, or see the ClearQuest Help.

Assigning a Change Request

After you submit a change request, you can use the Assign action to assign it to an engineer who will do the work. The Assign action is a state transition that moves a defect record from the Submitted state to the Assigned state. The **State** field on the Record Form tells you what state a record is in.

To assign the record:

1. Click **Actions** > **Assign**.
2. Fill in all of the information on the record tab and click **Apply**.

Administrator Tip: The exact process of working with records, including the states the record can be in and the actions available in each state, depends on the ClearQuest schema you are using and any customizations you have made to it. For more information about planning the states in your change management process, see Chapter 2, *Planning a Change Management Process*. For more information about customizing your schema, see *Customizing a Schema* on page 17, or see the *Administrator's Guide* for Rational ClearQuest.

Modifying a Change Request

Not all actions change the state of a change request. You can click **Actions > Modify** to change some information on a change request without changing its state.

Opening and Resolving a Change Request

If you are the engineer assigned to the change request, you begin work by clicking **Actions > Open**. This changes the record's state to Opened; now the rest of the team can see that you are working on the problem.

When you finish your work, click **Actions > Resolve** to change the record's state to Resolved.

Administrator Tip: As a ClearQuest administrator, you can restrict ClearQuest actions to specific user groups. For example, you might allow everyone on the team to resolve a change request, but restrict the Verify action to members of the Quality Assurance group. For more information about using security in Rational ClearQuest, see the *Administrator's Guide* for Rational ClearQuest.

Tracking Change Request Records in the Windows and UNIX Clients

In ClearQuest, you run a query to find specific defect or change request records in the database. ClearQuest queries make it easy for everyone on your team to track change request records as they move through your process. The following sections describe how to track change request records with the Windows or UNIX client. For information about tracking change request records with the ClearQuest Web client, see the Help.

Public and Private Queries

There are two main query folders in the Workspace: **Personal Queries** and **Public Queries**. When you use an out-of-the-box schema, the ClearQuest **Public Queries** folder includes ready-to-use queries that help you locate records by project or component, by assigned engineer, by level of severity, and so on. Any queries, charts, or reports that you create are always stored in the **Personal Queries** folder. Unless your administrator has given you Public Folder Administrator privileges, you are only allowed to save queries to the **Personal Queries** folder. You can modify a query in the **Public Queries** folder, but it is stored in the **Personal Queries** folder when you save it.

Running a Query From the Workspace

You run a ClearQuest query from the Workspace by double-clicking the query name.

For example, when you discover a defect in your software, you can run a query to see if the defect has already been submitted. Double-click **Public Queries > All Defects** in the Workspace to display all the records in the database. Or, double-click **Public Queries > Keyword search** to locate records containing a specific word in the **Headline** or **Description** field.

The Query Builder displays the records that fit the query criteria. If the query results are not displayed, click the **Result set** tab, located under the Query Builder. Click the **Query editor** and **Display editor** tabs to modify the selection criteria and the display of your query.

During a session of submitting new defects, you can click **Query > Recently Submitted** to see a list of the defects you have submitted since you logged on.

For more information about running queries, see the ClearQuest Help.

Creating a Custom Query

You create custom queries in ClearQuest to search for records based on criteria that you provide. You decide which fields you want your query to display, as well as the fields and corresponding values to use as query filters.

Fore more information about creating queries, see the ClearQuest Help.

Using the Query Wizard on the Windows Client

The Query Wizard walks you through the steps of creating a custom query. To verify that the Wizard is turned on, click **Query** and look for a check mark next to the **Use Query Wizard** option. If no check mark is visible, click **Query > Use Query Wizard** to activate the wizard.

Click **Query > New Query** to start the Query Wizard. Follow the instructions on the Query Wizard to:

- Build a new query or modify an existing one.
- Choose a record type to query.
- Select display fields for the query.
- Select fields for query filters and define filter values.

After you finish with the Query Wizard, query results are displayed in the **Results set** tab of the Query Builder. To save the new query to the **Personal Queries** folder, click **File > Save As** or click the **Save Query** button in the toolbar.

For help using the Query Wizard, click **Help** on the Query Wizard dialog.

You can also choose to create a query without using the Query Wizard. For more information, see the ClearQuest Help.

Administrator Tip: As a ClearQuest administrator, you can save queries to the Public Queries folder and can assign this privilege to other users. For more information about administering users, see the *Administrator's Guide* for Rational ClearQuest.

Modifying Queries

To modify a query, double-click the query in the Workspace and then use the **Query editor** and **Display editor** tabs to make your changes.

To change the filtering criteria for a query, use the **Query editor** tab. For example, you may want to modify a query to filter on the **Closed Date** field instead of the **Submit Date** field. To set up how the query results are displayed in the Query Builder, use the **Display editor** tab. You can select the fields you want displayed for each record as well as the sort criteria for the records.

To save the new query to the **Personal Queries** folder, click **File > Save As** or click the **Save Query** button in the toolbar.

Gathering Project Metrics

ClearQuest provides predefined charts and reports that you can run to view the status of your project at a glance. The options for creating and viewing charts and reports vary depending on the client you are using. For information about the charting and reporting capability of a particular client, see Table 5.

Table 5 Charting and Reporting Capability of ClearQuest Clients

Client	Charts	Reports
Windows	View and Create	View and Create
UNIX	N/A	Create (Textual Reports)
Web	View	View and Create

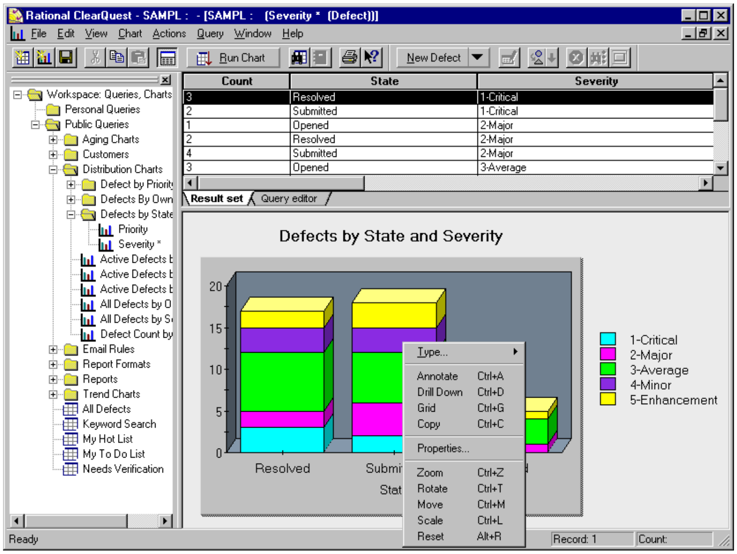
Using ClearQuest Charts

ClearQuest charts are graphic representations of record data. The out-of-the box ClearQuest schema repositories include many predefined chart types, including aging, distribution, and trend. Distribution charts show the current status of data; trend and aging charts show historical information.

For example, you can see how the workload is distributed among the engineers on your team by running a distribution chart that displays the defects assigned to each engineer. Or, you can see the defect records graphed by state and severity. For an example of a ClearQuest distribution chart, see Figure 5.

For more detailed information about working with ClearQuest charts, see the ClearQuest Help.

Figure 5 ClearQuest Distribution Chart



Creating ClearQuest Charts

To create a new ClearQuest chart, click **Query > New Chart**.

Use the Chart Wizard to:

- Specify chart type.
- Select the chart style.
- Select fields.
- Define labels.
- Select display type.

For more information, click **Help** in the Chart Wizard.

Saving ClearQuest Charts

After you create or modify a ClearQuest chart, you can save it to the **Personal Queries** folder in the Workspace. To save a chart, click **File > Save** or **File > Save As**.

Running ClearQuest Charts

To view an existing ClearQuest chart, double-click the chart in the Workspace. Depending on the type of chart you select, you may need to specify parameters that further define the query associated with the chart. In this case, specify the parameters and click **Run Query**.

Modifying ClearQuest Charts

You can modify the contents of an active chart in one of the following ways:

- Click **Edit > Properties** to define how the data is displayed.
- Use the **Query editor** tab to filter the records included in the chart.

To modify and save a chart, it must be located in the **Personal Queries** folder. Drag and drop public charts from the **Public Queries** folder to the **Personal Queries** folder to modify and save it.

Using ClearQuest Report Formats and Reports

You can use ClearQuest report formats and reports to format the display of ClearQuest data returned by a query. You first create a report format that specifies the layout of your report, including the fields that are displayed. You then create the actual report, which links a report format to a query.

ClearQuest out-of-the-box schemas come with predefined report formats and reports that you can view by clicking **Report Formats** or **Reports** in the **Public Queries** folder of the Workspace.

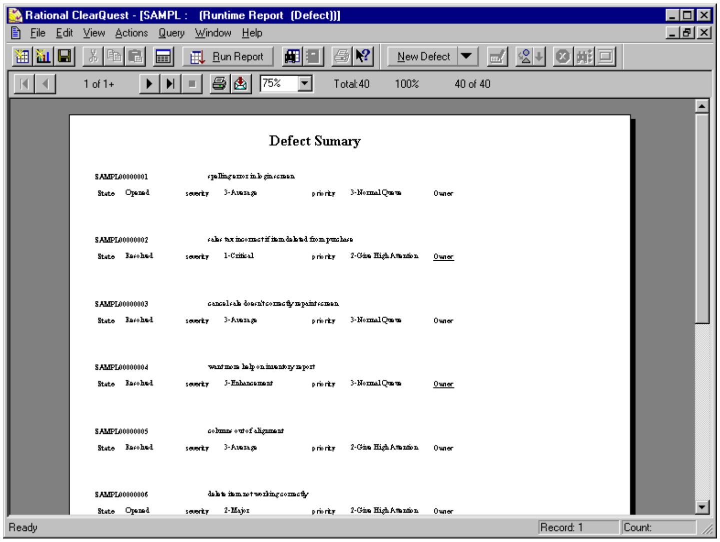
For more detailed information about working with ClearQuest reports and report formats, see the ClearQuest Help.

Creating Report Formats

To create a ClearQuest report, you must first create a ClearQuest report format to define the layout of your report. In order to create report formats, you must purchase and install Crystal Reports Professional Edition 8.5.

If your administrator has already created report formats in the **Public Queries** folder, you can use them to create new reports. See Figure 6 for an example of a report based on the Defect Summary report format.

Figure 6 ClearQuest Defect Summary Report



Creating Reports in ClearQuest Windows and ClearQuest Web

After you or your administrator create a report format with Crystal Reports, you can generate a ClearQuest report by applying the report format to an existing query or a set of query results. For detailed instructions, see the ClearQuest Help.

If you or your administrator are unable to create report formats, and you do not want to use the out-of-the-box formats, you can generate reports by using the ClearQuest integration with Rational SoDA. For more information about the Rational SoDA report generation tool and about setting up a report template, see the Rational SoDA Help. For detailed instructions on creating a SoDA report, see the ClearQuest Help.

Creating Textual Reports in ClearQuest UNIX

Although you cannot create and view graphical reports in ClearQuest UNIX, you can create textual reports by selecting and arranging information in a query result set. Like a graphical report, you can print or export a textual report. However, you are unable to save a textual report, and you must recreate it each time you use ClearQuest.

For detailed instructions on how to create a textual report in ClearQuest UNIX, see the ClearQuest Help.

Saving ClearQuest Reports

After you create or modify a ClearQuest report on ClearQuest Windows, you can save it to the **Personal Queries** folder in the Workspace. To save a report, click **File > Save** or **File > Save As**.

ClearQuest Web automatically saves your report after you create it, or when you modify it.

Running ClearQuest Reports

To view an existing ClearQuest report, double-click the chart in the Workspace. Depending on the type of chart you select, you may need to specify parameters that further define the query associated with the chart. In this case, specify the parameters and then click **Run Query**.

Modifying Reports and Report Formats in ClearQuest Windows

If you are using the ClearQuest Windows client, you can change the following properties of ClearQuest reports and report formats at any time:

- Report or report format name.
- Report layout.
- Data displayed in report.

Modifying the properties of reports and report formats is not supported in ClearQuest UNIX and ClearQuest Web.

Exporting ClearQuest Charts and Reports

Using ClearQuest, you can save and export ClearQuest charts and reports to files outside of the ClearQuest database.

In the ClearQuest Windows and ClearQuest Web clients, you can save and export charts as graphic files. You can then e-mail the graphics to remote users or import them into other files.

If you want to share a report or report format with someone at a remote location, or modify a ClearQuest report so that it can be viewed with a different application, you can export your report or report format from the ClearQuest Windows client.

Printing ClearQuest Data

You can use the ClearQuest client to print query results, individual change request records, charts, and reports.

For more information about printing options, see the ClearQuest client Help.

Receiving Automatic E-Mail Notification

Your ClearQuest administrator can configure ClearQuest to send e-mail messages to various team members when a change request is submitted or changed. To take advantage of automatic e-mail notification, all ClearQuest users must set up their e-mail options. To view and modify the e-mail options for your ClearQuest account, click **View > E-mail Options**.

Administrator Tip: The ClearQuest Email_rule record type makes it easy to define the rules for sending automatic e-mail notification to ClearQuest users. The Email_rule record type is part of the E-mail package included in every ClearQuest out-of-the-box schema. You can also use the Rational E-Mail Reader to configure your e-mail settings so that ClearQuest users can submit and modify records by e-mail.

For more information, see the ClearQuest Designer Help, or see the *Administrator's Guide* for Rational ClearQuest.

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