Rational® ClearQuest® Product Family

Installation Guide

VERSION: 2003.06.00 AND LATER

PART NUMBER: C53B4NA

UNIX EDITION

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Preface

Rational ClearQuest is a highly flexible defect and change tracking system that captures and tracks all types of change, for any type of project.

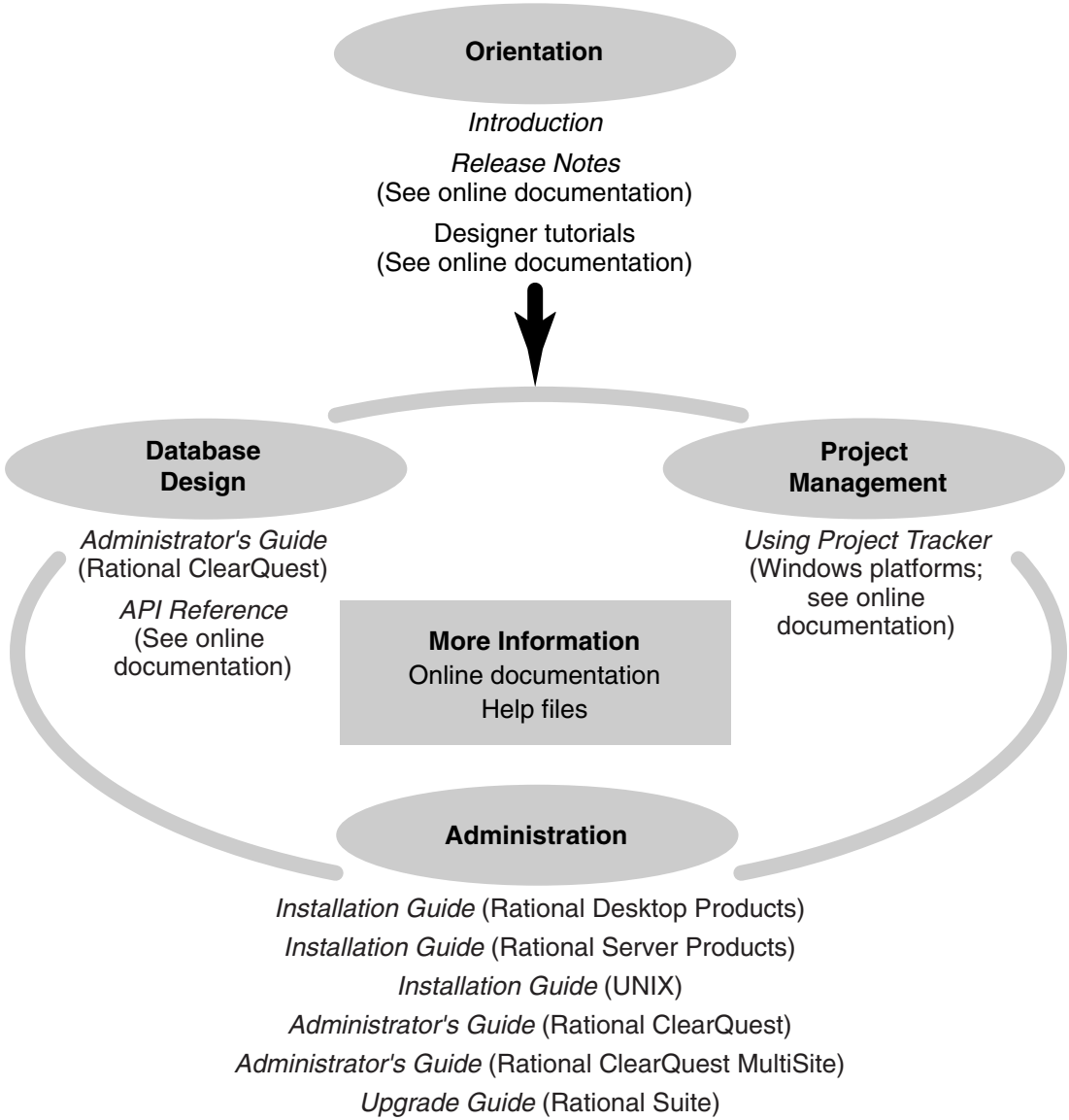
About This Manual

This guide is intended for the ClearQuest administrator. It explains how to install ClearQuest client, vendor databases, and related tools.

Before you install ClearQuest or ClearQuest MultiSite, we recommend that you read the following documents:

- *Release Notes* provide the latest release information. The HTML files are available:
  - On the product CD at doc/ClearQuest/cq_relnotes.htm
  - In the network release area at *rational_dir/arch*/clearquest/doc/cq_readme.html
- *Introduction* provides an overview of ClearQuest components and how to use them.
- *Administrator's Guide* for Rational ClearQuest explains how to customize ClearQuest.
- *Administrator's Guide for Rational ClearQuest MultiSite* explains how to create and administer database replicas.

ClearQuest 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*

Typographical Conventions

This manual uses the following typographical conventions:

- *ccase-home-dir* represents the directory into which the ClearCase Product Family has been installed. By default, this directory is /opt/rational/clearcase on UNIX and C:\Program Files\Rational\ClearCase on Windows.
- *cquest-home-dir* represents the directory into which Rational ClearQuest has been installed. By default, this directory is /opt/rational/clearquest on UNIX and C:\Program Files\Rational\ClearQuest on Windows.

- **Bold** is used for names the user can enter; for example, command names and branch names.
- A sans-serif font is used for file names, directory names, and file extensions.
- **A sans-serif bold font** is used for GUI elements; for example, menu names and names of check boxes.
- *Italic* is used for variables, document titles, glossary terms, and emphasis.
- `A monospaced font` is used for examples. Where user input needs to be distinguished from program output, **bold** is used for user input.
- Nonprinting characters appear as follows: <EOF>, <NL>.
- Key names and key combinations are capitalized and appear as follows: SHIFT, CTRL+G.
- [ ] Brackets enclose optional items in format and syntax descriptions.
- { } Braces enclose a list from which you must choose an item in format and syntax descriptions.
- | A vertical bar separates items in a list of choices.
- ... In a syntax description, an ellipsis indicates you can repeat the preceding item or line one or more times. Otherwise, it can indicate omitted information.

  Note: In certain contexts, you can use "**...**" within a pathname as a wildcard, similar to "*" or "?". For more information, see the **wildcards_ccase** reference page.
- If a command or option name has a short form, a "medial dot" (·) character indicates the shortest legal abbreviation. For example:

  lsc·heckout

Customer Support

If you have any problems with the software or documentation, contact Rational Customer Support by telephone or fax. You can find information about support hours, languages spoken, or other support information at www.ibm.com/software/rational/support/.

Your location	Telephone	Facsimile
Asia Pacific	61-2-9419-0111 Australia	61-2-9419-0123 Australia

Europe, Middle East, and Africa	+31-(0)20-4546-200 Netherlands	+31-(0)20-4546-201 Netherlands
Latin America and Mexico	+1-408-863-4000 Cupertino, CA	Use either location +1-408-863-4194 Cupertino, CA +1-781-676-2460 Lexington, MA
United States and Canada	1-800-IBM-SERV	Use either location +1-408-863-4194 Cupertino, CA +1-781-676-2460 Lexington, MA

Before You Install 1

This chapter describes the supported software and hardware platforms, the hardware and software requirements, and the language support.

- If you are upgrading Rational ClearQuest, see Chapter 7, *Upgrading ClearQuest*.
- If you are installing Rational ClearQuest MultiSite, see Chapter 6, *Postinstallation and Administration*.
- If you are installing Rational ClearQuest for the first time, you must complete the prerequisite installations, as described in Chapter 2, *Configuring Vendor Databases*.

The Release 2003.06.00 media kit contains release images which support the following platforms:

- Windows
- Solaris Sparc
- HP-UX
- AIX
- Red Hat Linux

ClearQuest Database Configurations in a UNIX Environment

ClearQuest supports three vendor databases in a UNIX environment:

- SQL Server
- Oracle
- DB2

Regardless of which database you use, you can configure ClearQuest to support the following:

- ClearQuest supports two types of clients that access a ClearQuest user database: a native client and a Web client. In general, client users can create and update ClearQuest records in a user database.

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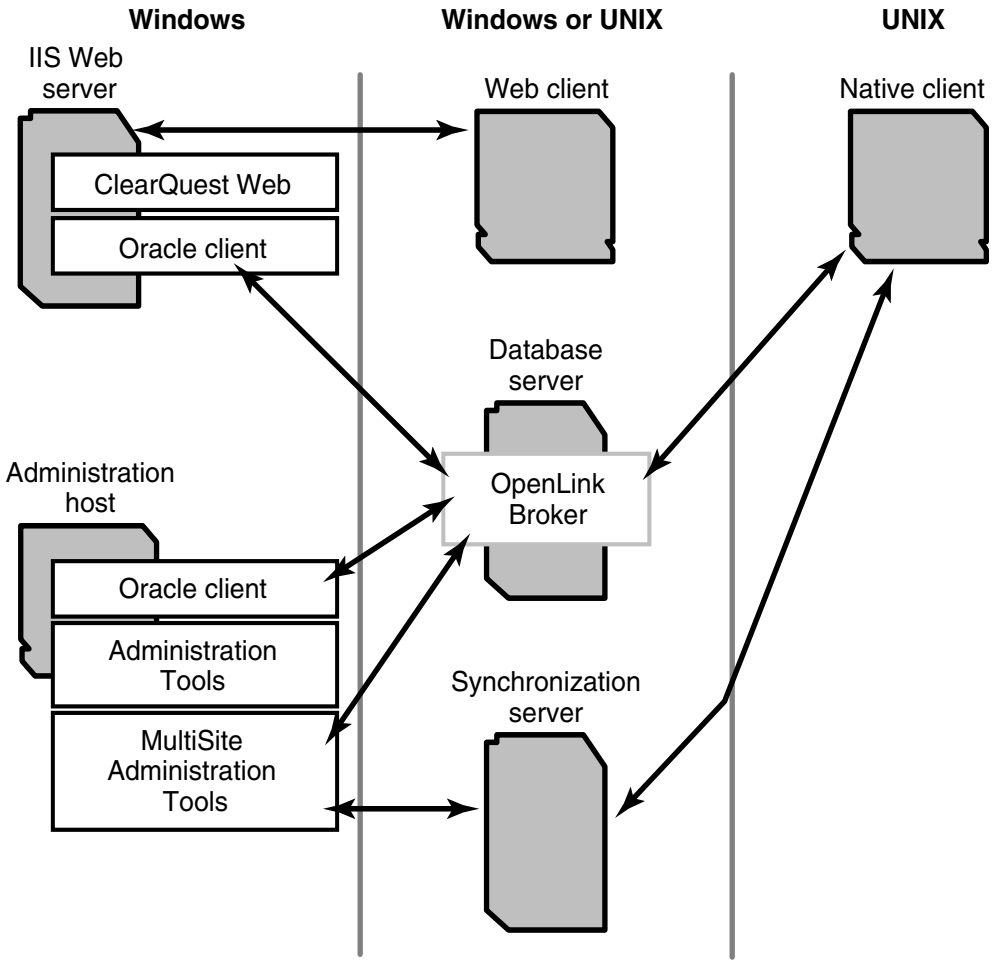
- The ClearQuest administrator uses the ClearQuest Administration Tools, which are installed only on a Windows operating system, to configure the schema repository and user databases for ClearQuest clients. For more information about installing the Administration Tools, see the *Installation Guide* for Rational Server Products.
- If you are using ClearQuest MultiSite on UNIX, you must install the MultiSite Administration Tools (**multiutil** and its subcommands) on Windows. For more information about installing ClearQuest MultiSite Administration Tools on Windows, see the *Installation Guide* for Rational Server Products.

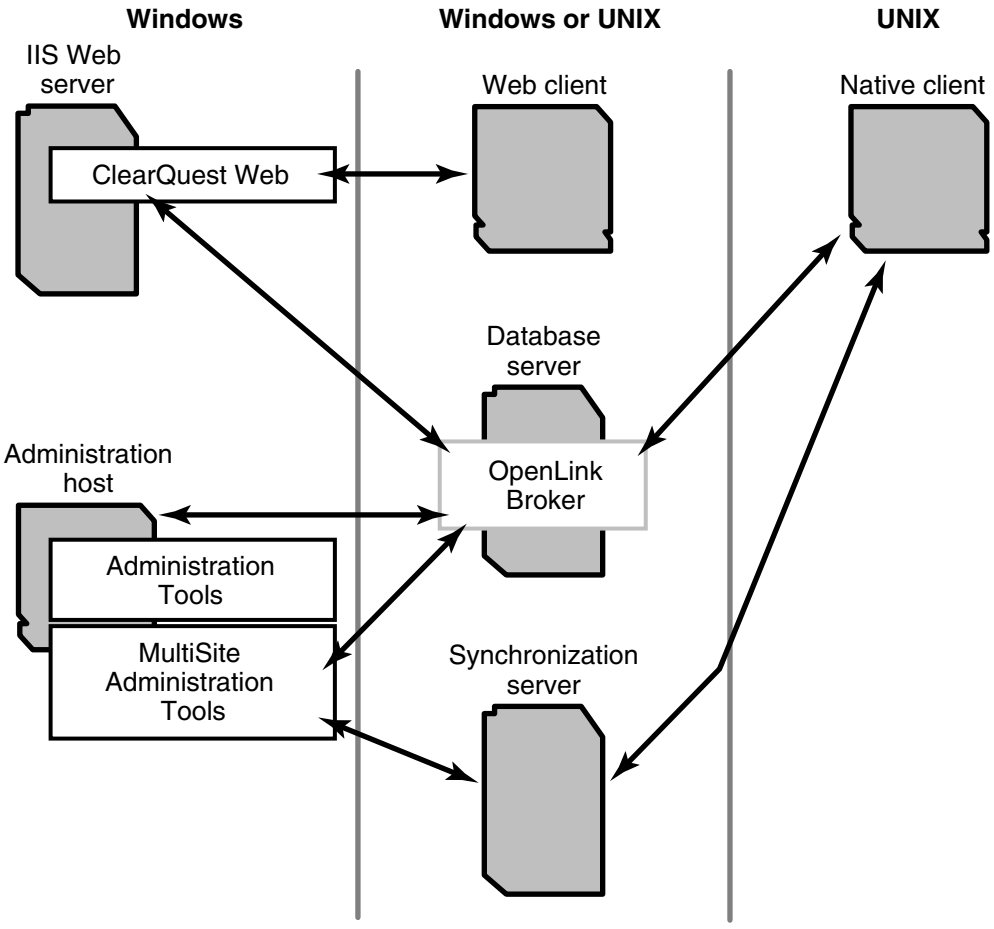
Each supported database has specific configuration requirements. For more information, see Table 3 and Table 5.

Figure 1 ClearQuest Environment with an Oracle Database



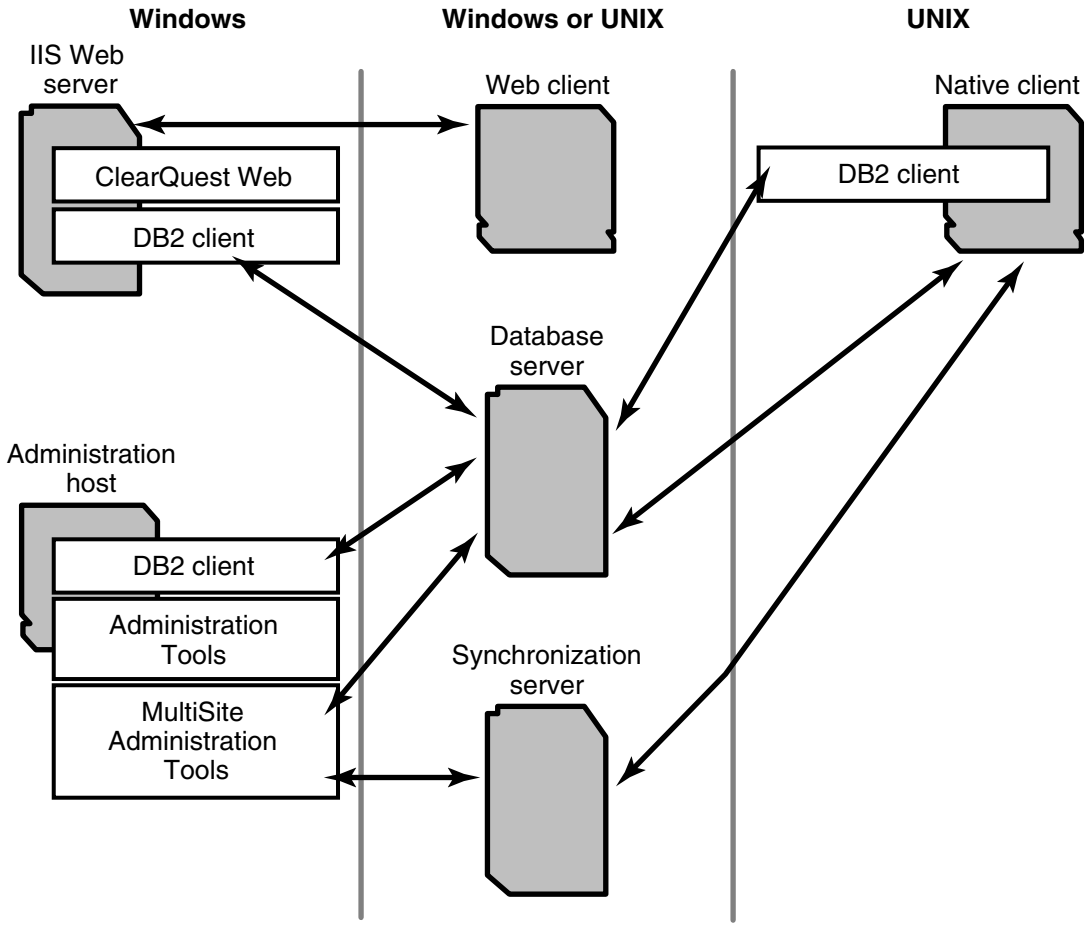
When using an Oracle database, an Oracle client must be installed and configured on the ClearQuest administrator host and the ClearQuest Web host (if you are using ClearQuest Web). In addition, OpenLink Broker must also be installed and configured on the Oracle database host (Figure 1).

Figure 2 ClearQuest Environment with a SQL Server Database



When using a SQL Server database, OpenLink Broker must be installed and configured on the SQL Server database host (Figure 2).

Figure 3 ClearQuest Environment with a DB2 Database



When using a DB2 database, a DB2 client must be installed and configured on the ClearQuest administrator host, the ClearQuest Web host (if you are using ClearQuest Web), and all native client hosts (Figure 3).

Configuring ClearQuest for Remote Use

After you install a native client on a supported UNIX host, that host can be accessed by remote UNIX hosts of the same architecture. Although the remote UNIX hosts do not have the native client installed, they can run ClearQuest on the network host. The remote hosts can also use the ClearQuest database registry directory, which is configured on the native client host. For more information, see *Recommended Postinstallation Tasks for the Network Install* on page 83.

When installing a native client, you must specify a path for the ClearQuest database registry directory for the database connection information. This directory can either reside on the local host in the default location or be an absolute path to a shared location on any network host. By using a shared location, all native clients and remote UNIX clients can use the same database connection information.

ClearQuest MultiSite Configuration for UNIX

To use ClearQuest MultiSite on UNIX, you must install the following ClearQuest MultiSite components on a Windows machine:

- MultiSite Administration Tools (**multiutil** and its subcommands)
- Rational Shipping Server (**shipping_server**, **mkorder**, and the shipping.conf file)

This release of ClearQuest MultiSite does not support installing **multiutil** or the Rational Shipping Server on a UNIX machine. Support for these components on UNIX will be available in a future release.

Component Locations

You have several options for where to install the MultiSite Administration Tools and the Rational Shipping Server on Windows. Because many MultiSite operations access the database server, you may choose to install the MultiSite Administration Tools on the database server. However, you should do this only if your database server machine has enough memory and processing power to handle the extra work. The following are suggested component locations:

- Install MultiSite Administration Tools and Rational Shipping Server on a Windows database server.
- Install MultiSite Administration Tools on a Windows database server and install Rational Shipping Server on a separate Windows machine.
- Install MultiSite Administration Tools and Rational Shipping Server on the MultiSite administrator's host.
- Install MultiSite Administration Tools and Rational Shipping Server on separate Windows machines; neither component is located on the database server.

Note: If you install the ClearQuest MultiSite Administration Tools on the same machine as your SQL Server 7.0 or 2000 database, the ClearQuest MultiSite commands may fail if the SQL Server Client software is not installed also.

Rational Shipping Server

When you use ClearQuest MultiSite, one or more hosts in the network act as synchronization servers. These machines host the Rational Shipping Server and transfer packets to other sites.

ClearQuest MultiSite and ClearCase MultiSite both use the same Rational Shipping Server. However, this release of ClearQuest MultiSite does not support installing the Shipping Server on a UNIX machine. For more information about installing the Rational Shipping Server on Windows, see the *Installation Guide* for Rational Server Products.

System Requirements

Table 1 and Table 2 define the operating system and hardware requirements. For more information, see *Compatibility Issues* on page 15.

Table 1 Supported Operating Systems

Component	Operating system
Native UNIX client	▪ Solaris versions 2.6, 7-9 ▪ HP-UX versions 11.0,QPK1100, 11.11, GoldQPK11i and Bundle11i ▪ AIX versions 4.3.3, 5.1, 5.2 ▪ Red Hat Linux versions 7.2, 7.3, 8.0, 9
Web clients	For Web clients on UNIX ▪ Netscape 4.72-4.78 on Solaris and HP-UX ▪ Netscape 7.0 on Solaris and HP-UX ▪ Mozilla 1.4 on AIX versions 5.1 and 5.2, and Red Hat Linux versions 7.2, 7.3, 8.0, 9, AS 2.1, ES 2.1, WS 2.1 Internet Explorer and Netscape require JVM 1.3.x or 1.4.x. Mozilla requires JVM 1.4.x for Red Hat Linux and AIX.

Table 1 Supported Operating Systems (Continued)

Component	Operating system
ClearQuest database server	A ClearQuest database server for UNIX native clients supports the following vendor databases: ▪ Oracle 8.1.6 ▪ Oracle 8.1.7 (requires Release 3) ▪ DB2 7.2 (requires Fixpack 8) ▪ DB2 8.1 ▪ SQL Server For more information on supported operating systems for the ClearQuest database server, see Table 3 and Table 4.

Table 2 Hardware Requirements

Component	Hardware	Requirements
Web clients	Processor	▪ 32 bit ▪ 128 MB RAM ▪ 233 MHz
	Disk space	60 MB
UNIX client	Processor	▪ 32 bit ▪ 128 MB RAM ▪ 233 MHz
	Disk space	▪ **Full-Copy** install on Solaris 211 MB ▪ **Standard** install on Solaris 75 MB ▪ **Full-Copy** install on HP-UX 204 MB ▪ **Standard** install on HP-UX 97 MB ▪ **Full-Copy** install on AIX 280 MB ▪ **Standard** install on AIX 221 MB ▪ **Full-Copy** install on Red Hat Linux 182 MB ▪ **Standard** install on Red Hat Linux 126 MB

Table 2 Hardware Requirements (Continued)

Component	Hardware	Requirements
Database server	Processor	▪ 32 bit ▪ 500 to 1 GB RAM ▪ 500 MHz or higher ▪ 2x physical memory is the recommended swap space [1]
	Disk space	▪ 250 MB at minimum

1. More memory generally improves responsiveness; it depends on the number of concurrent users, amount of data being requested, and the size of the database.

Database Software Requirements

Table 3 lists the supported databases and operating systems for the ClearQuest database.

Note: We recommend that you host the database server and the ClearQuest Web server on different machines. Putting both servers on the same host causes frequent hangs and script timeouts, and generally causes ClearQuest Web to be unreliable.

Table 3 Supported Database Servers for a ClearQuest Environment Using UNIX Native Clients

	Oracle (32 bit)		SQL Server	DB2	
Database Server Operating System Version	**8.1.6**	**8.1.7 (requires Release 3)**	**7.0, SP4 and 2000, SP 2, 3**	**Universal Database 7.2 (requires FixPack 8)**	Universal Database 8.1
Windows 2000 Server, Service Pack 2, 3			X	X	X
Windows 2000 Advanced Server, Service Pack 2, 3			X	X	X
Windows NT 4.0 Workstation Service Pack 6a + SRP (Security Rollup Package)			X	X	X

Table 3 Supported Database Servers for a ClearQuest Environment Using UNIX Native Clients (Continued)

	Oracle (32 bit)		SQL Server	DB2	
Database Server Operating System Version	**8.1.6**	**8.1.7 (requires Release 3)**	**7.0, SP4 and 2000, SP 2, 3**	**Universal Database 7.2 (requires FixPack 8)**	Universal Database 8.1
Windows NT 4.0 Server Service Pack 6a + SRP (Security Rollup Package)			X	X	X
Solaris 2.6	X	X			
Solaris 7	X	X			
Solaris 8	X	X			
Solaris 9	X	X			
HP-UX 11.00 QPK1100	X	X			
HP-UX 11.11 GoldQPK11i and Bundle11i	X	X			
AIX 4.3.3	X	X		X	X
AIX 5.1				X	X
AIX 5.2					X
Red Hat Linux 7.1		X			
Red Hat Linux 7.2				X	X
Red Hat Linux 7.3				X	X
Red Hat Linux 8.0					X
Red Hat Linux 9					X
Red Hat Enterprise Linux AS 2.1					X
Red Hat Enterprise Linux ES 2.1					X

Table 3 Supported Database Servers for a ClearQuest Environment Using UNIX Native Clients (Continued)

	Oracle (32 bit)		SQL Server	DB2	
Database Server Operating System Version	**8.1.6**	**8.1.7 (requires Release 3)**	**7.0, SP4 and 2000, SP 2, 3**	**Universal Database 7.2 (requires FixPack 8)**	Universal Database 8.1
Red Hat Enterprise Linux WS 2.1					X

Table 4 defines the supported ClearQuest database for ClearQuest native clients on UNIX.

Table 4 Supported Native Clients on UNIX Accessing ClearQuest Databases

	Oracle (32 bit)		SQL Server	DB2	
UNIX Native Client Operating System Version	**8.1.6**	**8.1.7 (requires Release 3)**	**7.0, SP4 and 2000, SP 2, 3**	**Universal Database 7.2 (requires FixPack 8)**	Universal Database 8.1
Solaris 2.6	X	X	X	X	X
Solaris 7	X	X	X	X	X
Solaris 8	X	X	X	X	X
Solaris 9	X	X	X	X	X
HP-UX 11.00 QPK1100	X	X	X	X	X
HP-UX 11.11 GoldQPK11i and Bundle11i	X	X	X	X	X
AIX 4.3.3	X	X	X	X	X
AIX 5.1				X	X
AIX 5.2				X	X
Red Hat Linux 7.2	X	X	X	X	X

Table 4 Supported Native Clients on UNIX Accessing ClearQuest Databases (Continued)

	Oracle (32 bit)		SQL Server	DB2	
UNIX Native Client Operating System Version	**8.1.6**	**8.1.7 (requires Release 3)**	**7.0, SP4 and 2000, SP 2, 3**	**Universal Database 7.2 (requires FixPack 8)**	Universal Database 8.1
Red Hat Linux 7.3	X	X	X	X	X
Red Hat Linux 8.0	X	X	X		X
Red Hat Linux 9	X	X	X		X

Table 5 defines the supported databases and operating systems for the ClearQuest database when running ClearQuest MultiSite and using native clients on UNIX.

Table 5 Supported Database Servers for ClearQuest MultiSite Environment Using UNIX Native Clients

	Oracle (32 bit)	
Database Server Operating System Version	**8.1.6**	**8.1.7 (requires Release 3)**
Solaris 2.6	X	X
Solaris 7	X	X
Solaris 8	X	X
Solaris 9	X	X
HP-UX 11.00 QPK1100	X	X
HP-UX 11.11 GoldQPK11i and Bundle11i	X	X
AIX 4.3.3	X	X
AIX 5.1		
AIX 5.2		
Red Hat Linux 7.1		X
Red Hat Linux 7.2		

Table 5 Supported Database Servers for ClearQuest MultiSite Environment Using UNIX Native Clients (Continued)

	Oracle (32 bit)	
Database Server Operating System Version	**8.1.6**	**8.1.7 (requires Release 3)**
Red Hat Linux 7.3		
Red Hat Linux 8.0		
Red Hat Enterprise Linux AS 2.1		
Red Hat Enterprise Linux ES 2.1		
Red Hat Enterprise Linux WS 2.1		

Installation Overview

To install ClearQuest and ClearQuest MultiSite for the first time:

1 Install prerequisite software. See *System Requirements* on page 7

2 Create a networkwide resource. See Chapter 4.

Establish a *release area* on a *release host*. This task is a prerequisite to installing ClearQuest on any host in your network. Because you cannot install directly from the CD, you must load the files to a release host to make them available over the network.

3 Install ClearQuest on individual hosts. See Chapter 5.

4 Perform postinstallation configuration procedures. See Chapter 6.

After ClearQuest is installed on individual hosts, the ClearQuest environment must be configured.

If this installation is an upgrade from a previous release, upgrade your existing databases to allow access to the new features. For more information, see Chapter 7.

Before you install ClearQuest, you must complete these tasks:

1 Set up your vendor database product. See Chapter 2.

2 Set up your license server. See Chapter 3, *Configuring ClearQuest Licensing*. If you are installing ClearQuest MultiSite, set up a license server for both ClearQuest and ClearQuest MultiSite.

3. If using the ClearQuest Web interface, install supported Web browsers. See *Install Supported Web Browsers* on page 14.
4. Install ClearQuest Administration Tools on Windows. See *Install ClearQuest Administration Tools* on page 14.
5. (Optional) If you plan to use the Rational Shipping Server with ClearQuest MultiSite, you must install it on a Windows machine:
   - If ClearCase is installed on Windows, install ClearCase MultiSite from the ClearCase Installation CD. The Rational Shipping Server is included in the ClearCase MultiSite installation.
   - If ClearCase is not installed on Windows, install the Rational Shipping Server from the ClearCase Installation CD.
6. (Optional) If you want to use ClearQuest MultiSite, install ClearQuest at the replica sites. For more information, see the *Administrator's Guide* for Rational ClearQuest MultiSite.

Install Supported Web Browsers

If you are planning to use the ClearQuest Web interface, you must ensure that all UNIX client hosts accessing the ClearQuest Web have the appropriate version of supported browsers. For more information, see Table 1.

Install ClearQuest Administration Tools

Install ClearQuest Administration Tools on a Windows host. This tools are required to set up the ClearQuest schema repository and user databases. For more information, see the *Installation Guide* for Rational Server Products.

Install an Oracle Client

To access an Oracle database, Oracle Client Software must be installed on the administrator host. To install this software, see the Oracle Networking Products documentation.

Install a DB2 Client

To access a DB2 database, DB2 client software must be installed on the administrator host and all native clients on UNIX. To install DB2 client software, see the IBM documentation.

Compatibility Issues

This section describes the compatibility issues of ClearQuest release 2003.06.00 with other Rational products and third-party products.

Rational Products

This section describes compatibility issues with other Rational products.

Interoperation Between Versions

It is possible to interoperate between different versions of ClearQuest when one version is on Windows and a different version is on UNIX. For more information, see the *Administrator's Guide* for Rational ClearQuest.

Integrations with ClearCase and MultiSite

The ClearQuest integration with UCM and base ClearCase is designed to work in a MultiSite deployment. Both integrations require ClearCase release 4.2 or higher. For more information about using ClearQuest MultiSite integration with ClearCase, see Solutions #22587.

MultiSite UCM Integration

The ClearQuest UCM package works in a MultiSite deployment. If you plan to use ClearQuest MultiSite with the UCM integration, you must upgrade your UCM package to the latest version.

MultiSite Version Interoperability

MultiSite synchronization servers must run ClearQuest version 2002.05.01 Patch 02, 2002.05.01 Patch 03, or 2003.06.00. We recommend that you upgrade all ClearQuest clients to version 2003.06.00 if you use a MultiSite 2003.06.00 synchronization server.

ClearCase MultiSite and the Rational Shipping Server

If you are using ClearCase MultiSite and the Rational Shipping Server on the same computer and uninstall one of those products, the other product is partially uninstalled and stops working. To resolve the problem, you must uninstall both products and reinstall the product you need.

Note: This version of ClearQuest MultiSite does not support the Rational Shipping Server on UNIX.

Database Connections When ClearQuest Is Uninstalled

The ClearQuest MultiSite command-line interface, **multiutil**, uses a unique database set name to access database replicas. When ClearQuest is uninstalled, the database set information on that host is removed. When you reinstall ClearQuest, the database set information must be re-created. To do so, in the ClearQuest Maintenance Tool, click **Connection > New** and provide the connection information for the schema repository at this site. You must name the connection using the format **CQMS**.*clan_name*.*site_name*.

Third-Party Products

This section describes compatibility issues with third-party products.

SQL Server 2000

During the installation for SQL Server 2000, you can select authentication for Windows only or mixed mode (Windows and SQL Server) authentication. You must select mixed mode authentication.

Later in the installation process, you are prompted for a database instance name. This name must be the same as that of the host on which you are installing. To use the correct instance name, leave the instance name blank and accept the default. If an instance name is entered, several issues arise:

- Clients running earlier versions of Microsoft Data Access Components (MDAC), such as 2.1.2, cannot connect to the database.
- UNIX clients cannot connect to the SQL Server database.
- For the client host, you must install the SQL Server client or edit the registry manually. The following is an excerpt from the Microsoft white paper *Upgrading to SQL Server 2000*:

  "When using the SQL Server client connectivity components from SQL Server 7.0 or earlier, you must set up an alias using the Client Network Utility before you connect to a named instance of SQL Server 2000. For example, on a SQL Server 7.0 client, to connect to a named instance of SQL Server 2000, you must add an alias that points to *computername*\pipe\MSSQL$*instancename*\sql\query. If you use an alias name of *computername**instancename*, clients can connect by specifying this name in the same way as SQL Server 2000 clients do. For the TCP/IP Sockets and NWLink IPX/SPX Net-Libraries, you must use the Client Network Utility to define an alias on the client that specifies the port address on which the named instance is listening."

For more information, see the Microsoft support Web site at support.microsoft.com.

Installing Web Browsers

To use the ClearQuest Web capability, ensure that your client machine has the appropriate browser versions. See *System Requirements* on page 7 for information on the supported browsers. To use ClearQuest Web and the Advanced Query Editor, install either Java Runtime Environment (JRE) 1.3.x or 1.4.x for a Netscape browser or JRE 1.4.2 for a Mozilla browser. If you are using Netscape Navigator or Mozilla to access ClearQuest Web, you are prompted to download a Java plug-in if a supported version of the Java plug-in is not enabled.

Adobe Reader Version 4.0

To read manuals in PDF format, you need Adobe Acrobat Reader, version 4.0 or later. Download the free Adobe Acrobat Reader from Adobe.com.

Language Support

The ClearQuest native client is only supported for installation on an operating system using an US English locale. ClearQuest databases supporting UNIX native clients must use the ASCII code page **20127**.

Installing ClearQuest MultiSite at a Replica Site

To install ClearQuest MultiSite at a replica site:

1. Set up your database product. As the ClearQuest administrator, you are responsible for setting up the ClearQuest databases. See Chapter 2, *Configuring Vendor Databases*.
2. Set up your license server. See *Licensing Rational software* on page 32 and *Licensing ClearQuest MultiSite* on page 33.
3. Install the native client and the Rational Shipping Server on the appropriate hosts. Note that you can only install the Rational Shipping Server on Windows machines.

   DO NOT create ClearQuest databases before you import a replica-creation packet.

   Warning: A ClearQuest database is automatically created when you import a replica-packet packet into an empty vendor database. If you have created a ClearQuest database with the Maintenance Tool or ClearQuest Designer, the replica import will fail. Delete the vendor databases and create them again.
4. Configure the shipping.conf file on the host. See the *Administrator's Guide* for Rational ClearQuest MultiSite.

5. Determine the appropriate ClearQuest data code page value and vendor database character set to use for your MultiSite deployment. For more information, see the *Administrator's Guide* for Rational ClearQuest.
6. Activate the database set you want to replicate and export replica-creation packets to all sites. After receiving replica-creation packets, import the packets into empty vendor databases. For instructions, see *Creating Defect-Tracking Database Replicas* in the *Administrator's Guide* for Rational ClearQuest MultiSite.
7. Install ClearQuest on the client hosts and provide your users with the ClearQuest database connection information. See Chapter 6, *Postinstallation and Administration*.

Configuring Vendor Databases

2

After you install Rational ClearQuest, you must create and configure the vendor databases for use with ClearQuest, ClearQuest Web, and ClearQuest MultiSite.

These products require at least two databases:

- A schema repository, which is the master database in which ClearQuest and ClearQuest MultiSite store the schema.
- A user database, which stores data entered by ClearQuest users. You can have as many user databases as you need.

This chapter covers the following topics:

- *Choosing a Vendor Database* on page 19
- *Setting Up Databases for ClearQuest MultiSite* on page 20
- *Setting Up Microsoft SQL Server* on page 21
- *Setting Up the Oracle Server* on page 25
- *Setting Up IBM DB2* on page 28

Choosing a Vendor Database

You can use more than one vendor database for ClearQuest databases. For example, you may want to use an Oracle database for your schema repository and user databases and use a Microsoft SQL Server database for your test database. We recommend that you use the same vendor database with ClearQuest MultiSite because the case-sensitivity rules are not consistent between vendors.

When choosing a database vendor for the ClearQuest databases, see Table 3 on page 9 and Table 5 on page 12 for supported versions of database products.

Case-Sensitivity Settings

Your case-sensitivity settings must be consistent in either of these situations:

- You are moving your database to another database vendor.

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- You are using ClearQuest MultiSite and multiple synchronized databases created with different vendor databases.

The following table summarizes the case-sensitivity properties of the supported vendor databases.

Database product	Default setting	Possible settings	Comments
DB2	Case-sensitive	Case-sensitive	Case-sensitivity applies only to data, not to database object names.
SQL Server	Case-insensitive, Case-sensitive	Case-insensitive, Case-sensitive	Case-sensitivity applies to data and database object names. Case-sensitivity can be specified either at the installation time or database creation time.
Oracle	Case-sensitive	Case-sensitive	The case-sensitivity applies only to data, not to database object names.

Supported Character Sets

The ClearQuest database, when supporting access by a UNIX client, supports only the ASCII character set.

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

Setting Up Databases for ClearQuest MultiSite

If you are installing ClearQuest MultiSite, do not create additional databases at the replica site. For more information, see *Installing ClearQuest MultiSite at a Replica Site* on page 17

Note: If you are using the native client on UNIX with ClearQuest MultiSite, you cannot use an Oracle database on Windows.

When you replicate an existing ClearQuest schema repository and user database, you must create empty databases at the new site, but do not create ClearQuest databases at the new site.

Setting Up Microsoft SQL Server

Install SQL Server 7 or 2000 on a supported platform (see *System Requirements* on page 7). For instructions, see the product documentation.

Note: To use a SQL Server database with native clients on UNIX, you must specify an ASCII code page. For more information, see *Using OpenLink Broker for ASCII Mode* on page 74.

When installing SQL Server, follow these guidelines:

- Your SQL Server databases must be in the same network domain as both your ClearQuest Web server and any ClearQuest clients or tools that must connect to the database. If they are not in the same domain, you will get errors. For more information:
  - See the Microsoft KnowledgeBase Article Q152828 at http://www.microsoft.com/. To locate the article, click the **Search** at the top of the page, and enter the article number.
  - See the Rational Customer Support TechNote 8184, "How do I access an SQL Server database in another domain?" at http://www.ibm.com/software/rational/support/.
- Select one of the following sort-order options:
  - **Dictionary order, case-sensitive**.
  - **Dictionary order, case-insensitive**.

    If you change sort orders after installing SQL Server, you must rebuild the SQL databases and reload the data.

    Note: Changing the sort orders affects the case-sensitivity of ClearQuest queries. If you want ClearQuest queries to be case-insensitive, set the order here. For more information, see *Case-Sensitivity Settings* on page 19.
- You must set up an empty SQL Server database for the ClearQuest schema repository and an empty SQL Server database for each ClearQuest user database. To create the databases:

  a Verify server registration.

  b Create an empty database.

  c Set up a backup procedure for the database.
- Create an SQL Server login with the **db_owner** role to be used for the ClearQuest database logins. ClearQuest uses the same login for all connections.

Note: Do not use the SA (system administrator) login. During an upgrade or move, ClearQuest requires empty databases. If you use the SA login, ClearQuest can see the system tables; it assumes the database is not empty and does not let the process continue.

When installing SQL Server 2000, it is important to select the default registration name for your database server, which makes the registration name the same as your server's host name.

Registering the SQL Server Host

You must first determine whether the host is registered. To do so, click **Programs > Microsoft SQL Server 7.0 > Enterprise Manager** or **Programs > Microsoft SQL Server > Enterprise Manager**.

For SQL Server 2000, click **Programs > Microsoft SQL Server > Enterprise Manager** or **Programs > Microsoft SQL Server > Enterprise Manager**. Select your Windows server in the **SQL Server Group**.

If your server is registered, see *Creating a SQL Server Database* on page 23. If your server is not shown, register it now. To register your server:

1. Right-click the **SQL Server Group** and select **New SQL Server Registration**. The Register SQL Server Wizard appears. Click **Next.**

   When installing SQL Server 2000, accept the default registration name for your database server. Doing so makes the registration name the same as your server's host name.

2. Select a server name, and click **Next**.

   Record the server name; you will use it during the ClearQuest installation.

3. On the **Select an Authentication Mode** page, select **SQL Server Authentication**, and then click **Next**.

4. Select **Login automatically using my SQL Server account information**. Type **SA** in the **Login name** box, and type your SA password in the **Password** box. Then click **Next**. (The SA user has the privilege to create logins and databases.)

5. Add this server to an existing group or create a new group. Then click **Next**.

6. Click **Finish**. The server appears in the list of servers.

7. In the status window, verify that registration has been completed successfully and then click **Close**.

Creating a SQL Server Database

To create an empty database for the schema repository and the user database:

1. On the **Start** menu, click **Programs > Microsoft SQL Server 7.0 > Enterprise Manager** or **Programs > Microsoft SQL Server > Enterprise Manager**.
2. For SQL Server 7, double-click the server name in the **SQL Server Group** to open the Getting Started Taskpad in the right pane. Click **administer SQL Server > create a database** to start the Create Database Wizard.

   For SQL Server 2000, double-click the server name in the **SQL Server Group** and then click the **Wizards** tab in the right pane. Click **Setup a Database > Create a database** to start the Create Database Wizard. Click **Next**.
3. In the **Database name** box, type the database name and specify a file system location for the database and the log. Click **Next**.

   Note: Do not use spaces or nonalphanumeric characters in the database name. (Underscores are acceptable.)
4. Accept the default name for the database files and click **Next**. Define the database file growth parameters. Click **Next**.

   Note: Allocate at least 50 MB for the schema repository and at least 15 MB for every 1,000 records that you expect each user database to store.
5. Define the transaction log file growth parameters. Click **Next.**
6. Click **Finish**.
7. Create a database maintenance plan.

   You are prompted to create a **Database Maintenance Plan**. The Database Maintenance Plan Wizard helps you set up a database backup routine. We strongly recommend that you set up automated nightly backups for all ClearQuest databases.

   For SQL Server 7:

   To set the properties for the new database:

   a. Select the new database in the server's databases folder.

   b. Right-click the database and click **Properties**.

   c. On the **Options** tab, select the following settings, which keep the log file from growing too large:

      Select into / bulk copy

      Truncate log on checkpoint

d Click **Apply**.

For SQL Server 2000:

To control the log file size in SQL 2000, create a maintenance plan that performs a daily backup of both the database and log file. The log file is then truncated each day after the daily backup.

8 Repeat Step 1 through Step 6 for each empty user database that you want to create.

Creating SQL Server Logins

You must create a **db_owner** login for each ClearQuest database (schema repository and each user database). To do so, select the **db_owner** role for each login that you create.

Note: Do not use the SA (system administrator) as the owner login of a ClearQuest database. During an upgrade or move, ClearQuest requires empty databases. If the SA login is used, ClearQuest can see the system tables; it assumes the database is not empty and does not let the process continue.

To create a **db_owner** login for the empty databases for the schema repository and user databases:

1 On the **Start** menu, click **Programs > Microsoft SQL Server 7.0 > Enterprise Manager** or **Programs > Microsoft SQL Server > Enterprise Manager**.

2 In the left pane of the Enterprise Manager, expand the **Security** folder. Right-click **Logins** and click **New Login** to create a new user for the schema repository database. The SQL Server Login Properties - New Login dialog box opens.

3 On the **General** tab, select **SQL Server Authentication**.

Note: ClearQuest requires a SQL Server login for each database and does not support Windows NT authentication. You must configure the SQL Server to operate in **mixed mode** (that is, **Windows NT Authentication** and **SQL Server Authentication**). To set this property by using Enterprise Manager, right-click the server and select **Properties**. In the Properties dialog box, on the **Security** tab, click **Windows NT Authentication and SQL Server Authentication.**

4 On the **General** tab, type a user name and password in the **Name** and **Password** boxes.

In the **Defaults** area, select your database and leave the **Language** set to **<Default>**.

5 On the **Server Roles** tab, verify that no server roles are granted on the **Server Role** list.

6 On the **Database Access** tab, select the new database from the **Permit list** to grant the login permission. Under **Permit in database role**, select **db_owner** and **public**. Do not grant the user any other privileges.

7 Click **OK** and verify your password.

8 Repeat Step 1 to Step 7 for each ClearQuest user database that you have created. When repeating Step 2, double-click the user name that you created for the schema repository in the right pane of the Enterprise Manager. On the **General** tab, the information for the **Name** and **Password** boxes will be completed.

Ensuring SQL Server Client Connectivity

To ensure connectivity to ClearQuest database, the ClearQuest Administration Tools host requires Microsoft Data Access Components (MDAC) 2.7. If MDAC 2.7 is not present on the host when you install ClearQuest Administration Tools, it is installed. For more information, see the *Installation Guide* for Rational Server Products.

Setting Up the Oracle Server

If you are using an Oracle database, see the Oracle documentation to install and create the databases. To use interMediaText support for multiline searches, you must select interMediaText during the initial installation. If you are using Oracle 8.1.7, you must upgrade Oracle 8.1.7 to release 8.1.7.3 for Solaris, AIX, and Red Hat Linux or release 8.1.7.4 for HP-UX.

Note: To use an Oracle database with native clients on UNIX, you must specify an ASCII code page, when installing an Oracle database. For more information, see the *Administrator's Guide* for Rational ClearQuest.

When you set up your Oracle databases, follow these guidelines:

- Create an Oracle database instance or identify one to use for ClearQuest data.
- Create two or more database user accounts (each with its login):
  - The user login for the ClearQuest schema repository.
  - One user login for each ClearQuest user database.
- Grant each user login the **Connect** and **Resource** roles only.

Note: We recommend that you associate each database user with a unique default tablespace. In the Oracle database, users can share the **temporary** tablespaces, but these must be separate from the Oracle system tablespace.

Note: Oracle is a case-sensitive database. If you are using ClearQuest MultiSite or want to migrate to a different vendor, you should evaluate your database case-sensitivity settings. For more information, see *Case-Sensitivity Settings* on page 19.

Installing and Configuring an Oracle Client

The ClearQuest administrator host cannot access the ClearQuest database unless the Oracle Client Software is installed on it. To install Oracle Client Software, see the Oracle product documentation. After the installation is complete, the Net8 Assistant starts, which lets you create a database alias. See *Creating an Oracle Database Alias* on page 66.

Enhancing Oracle Search Capabilities

In a standard Oracle installation, you cannot perform a string search on multiline text boxes. For example, you cannot search for text in a multiline **Notes** box in ClearQuest.

To enable Multiline search, the interMediaText packages must be installed on the Oracle server. When installed, multiline text boxes become available for queries in ClearQuest.

Enabling Oracle Multiline Search

Note: Before you can configure interMediaText for multiline searches for Oracle 8.1.7, you must upgrade to release 8.1.7.3 for Solaris, AIX 4.3.3, Red Hat Linux 7.1 and release 8.1.7.4 for HP-UX . After you complete the upgrade, follow the postinstallation instructions in the *Oracle 8i Data Server Patch Set Notes* before you configure interMediaText.

To enable Oracle multiline text search for Oracle 8.1.6 or 8.1.7.3 running on Solaris, AIX, and Red Hat Linux or Oracle 8.1.6 or 8.1.7.4 running on HP-UX:

1. Verify that interMediaText is installed. Generally, it is installed when the Oracle server is installed. Verify that the installation has created an Oracle user login for the **ctxsys** user before running the scripts to configure interMediaText.
2. If you have not created the ClearQuest schema repository and user database, run the ClearQuest Maintenance Tool from the ClearQuest administrator host to create the schema repository and user database. For more information, see *Creating the ClearQuest Databases* on page 67.
3. Create the directory $ORACLE_HOME/ctx/log on the Oracle server host.
4. Start the **ctxsrv** application on the Oracle database host. Note, the **-personality** parameter is optional. For example, from the Oracle database server, run the following command:

% ctxsrv -user ctxsys/ctxsys@*database-alias-name* **-personality M -log $ORACLE_HOME/ctx/log/ctx.log &**

ctxsys/ctxsys is the default user name and password and *database-alias-name* is the Oracle database alias.

Note: Run **ctxsrv** in the background. Oracle does not provide a means to start this server at boot time; you must either run these processes manually or develop a shell script for that purpose.

5 To give the necessary privileges to the ClearQuest user, run the SQL **setup_cq_ora_user.sql** script. To do so, use the Oracle SQL*Plus utility as the Oracle **ctxsys** user.

The SQL script (setup_cq_ora_user.sql) is available in the ClearQuest installation directory (*drive*:\Program Files\Rational\ClearQuest) on the ClearQuest administrator host. Run the following command from the ClearQuest administrator host on which an Oracle client is installed and configured for the Oracle database alias:

cd *drive***:\Program Files\Rational\ClearQuest**
sqlplus ctxsys/ctxsys@*database-alias-name* **@setup_cq_ora_user.sql** *cquser*

where *cquser* is the name of the Oracle login used for creating the ClearQuest database.

6 To set up the text indexes required for multiline searches, run the SQL script **setup_cq_intermedia.sql**, which is available in the ClearQuest installation directory on the ClearQuest administrator host. For example:

cd *drive***:\Program Files\Rational\ClearQuest**
sqlplus *cquser/password@database-alias-name* **@setup_cq_intermedia.sql**

where *cquser* is the name of the Oracle login used to create the ClearQuest database.

Caution: This script must be run for each user database. But do not run it until the database has been created (either in ClearQuest Maintenance Tool or ClearQuest Designer). If the database does not exist, the script cannot find the necessary ClearQuest tables.

Enabling Oracle CLOB Data Type Support

This release of ClearQuest supports a new Oracle data type called CLOB. See the *Release Notes* for guidelines when specifying either **CLOB** or **LONG** as the data type for new Oracle databases. For more information, see *Creating the ClearQuest Databases* on page 67.

Setting Up IBM DB2

To use ClearQuest with IBM DB2 databases, you must install a supported release of DB2 on your database server. Table 3 on page 9 and Table 5 on page 12 list supported versions of DB2. You cannot make a connection between a DB2 8.1 client and DB2 7.2 server. The following are the supported combinations:

- DB2 7.x client to DB2 7.x server
- DB2 7.x client to DB2 8.1 server
- DB2 8.1 client to DB2 8.1 server

Using any other combination of client and server versions is neither supported nor recommended.

Note: To use a DB2 database with native clients on UNIX, you must specify an ASCII code page, when installing a DB2 database. For more information, see the *Administrator's Guide* for Rational ClearQuest.

Note: DB2 is a case-sensitive database. If you are using ClearQuest MultiSite or want to migrate to a different database vendor, you should evaluate your database case-sensitivity settings. For more information, see *Case-Sensitivity Settings* on page 19.

Creating a DB2 Database

You must set up an empty DB2 database for the schema repository and for each user database.

For DB2 7.x

To create a DB2 database:

1. Click **Start > Programs > IBM DB2 > Control Center**.
2. Enter the login name and password for the DB2 administrator account and click **OK**.
3. In the DB2 Control Center, expand the host name that corresponds to the database server name.
4. Ensure that all DB2 services are running on the DB2 server host. Right-click the **Databases** folder and click **Create > Database using Wizard**.

   Note: If the database creation is not successful, run the following command:

   ```
   db2>
   ```

`db2>` **connect to** *database-name*

`db2>` **bind db2schema.bnd blocking all grant public**

`db2>` **disconnect all**

5 In the **Database name** box, type the name of the database.

Note: DB2 supports database names of up to eight characters.

6 Select a default drive and type an alias name in the **Alias** box. Optionally, provide a comment in the **Comment** box. Click **Finish**.

7 Expand the **Database name** folder for the database you have created.

8 Right-click the **Buffer Pools** folder and then click **Create**. In the Create Buffer Pool dialog box:

a Type a **Buffer pool** name (such as **BFP16K**) and set **Page size** to **16**.

b Accept the default for **Size in 16 KB pages**.

c Clear the **Use extended storage** and **Use default bufferpool size** check boxes if they are selected.

d Click **OK**.

9 Right-click the **DB2** folder, and click **Stop**. Select the **Disconnect all applications** check box in the Confirm Stop dialog box. Then, from the **DB2** folder, click **Start** to restart the database with buffer pool activated.

10 Under the *database-name* folder for the database you have created, right-click the **Table Spaces** folder and click **Create > Table space**. In the Create Table Space dialog box:

a Type a name in the **Table space name** box (for example: **TSPRGR16K**), set the **Type of table space** to **Regular** and set **Space management** to **System**.

b In the **Container name** section, click **Add**. In the Add Container dialog box, type a name in the **Container** box (for example; **cntr1a_16K**) and click **OK**. The container name then appears in the Create Table Space dialog box.

11 Click **Advanced** to open the Advanced dialog box:

a Set **Page size** to **16**; then select the buffer pool name created in Step 8 and click **OK**.

b Click **OK** to close the Create Table Space dialog box.

c In the right pane of the Control Center, right-click the new tablespace name you have created and select **Privileges**.

d On the **Group** tab, click **Add**, select the **Public** group, and click **OK**. Set the **Privileges: Use** area to **Yes** and click **OK**.

12 Under the *database-name* folder for the database you have created, right-click the **Table Spaces** folder and click **Create > Table space**. In the Create Table Space dialog box:

a Type a name in the **Table space name** box (for example: **TSPTMP16K**), set **Type of table space** to **System Temporary** and set **Space management** to **System**.

b In the **Container name** section, click **Add**. In the Add Container dialog box, type a name in the **Container** box (for example; **cntr1b_16K**) and click **OK**. The container name then appears in the Create Table Space dialog box.

13 Click **Advanced** in the Advanced dialog box:

a Set **Page size** to **16**; then select the buffer pool name created in Step 8 and click **OK**.

b Click **OK** to close the Create Table Space dialog box.

14 Right-click the **DB2** folder, and click **Stop**. Select the **Disconnect all applications** check box in the Confirm Stop dialog box. Then, from the **DB2** folder name, click **Start** to restart the database using the larger page size.

15 In the left pane of the Control Center, for each database created, right-click the *database-name* folder and select **Configure** to open the Configure Database dialog box.

a On the **Performance** tab, set the values for **Application heap size**, **Application control heap size,** and **Sort heap size** to **1024**.

b On the **Log** tab, set the values for these parameters: **Log File size** to **1000**, **Number of Primary Log Files** to **15**, and **Number of Secondary Log Files** to **10**.

c Click **OK**.

16 Right-click the **DB2** folder and click **Stop**. Then click **Start** to restart the database with the configuration parameters.

For DB2 8.1

To create a DB2 database:

1 Click **Start > Programs > IBM DB2 > General Administration Tools > Control Center**.

2 Enter the login name and password for the DB2 administrator account and click **OK**.

3 In the DB2 Control Center, expand the host name that corresponds to the database server name.

4 Ensure that all DB2 services are running on the DB2 server host. Right-click the **Databases** folder and click **Create > Database using Wizard**.

Note: If the database creation is not successful, run the following command:

```
db2>
db2> connect to database-name
db2> bind db2schema.bnd blocking all grant public
db2> disconnect all
```

5 In the **Database name** box, type the name of the database.

Note: DB2 supports database names of up to eight characters.

6 Select a default drive and type an alias name in the **Alias** box. Optionally, provide a comment in the **Comment** box. Click **Finish** and then click **No** when prompted to start the Configuration Advisor.

7 Expand the **Database name** folder for the database you have created.

8 Right-click the **Buffer Pools** folder and then click **Create**. In the Create Buffer Pool dialog box:

- **a** Type a **Buffer pool name** (such as **BFP16K**) and set **Page size** to **16**.
- **b** Accept the default for **Size in 16 KB pages**.
- **c** Clear the **Use extended storage** and **Use default bufferpool size** check boxes if selected.
- **d** Click **OK**.

9 Right-click the **DB2** folder, and click **Stop**. Select the **Disconnect all applications** check box in the Confirm Stop dialog box. Then, from the **DB2** folder, click **Start** to restart the database with buffer pool activated.

10 Under the *database-name* folder for the database you have created, right-click the **Table Spaces** folder and click **Create > Table space**. In the Create Table Space Wizard:

- **a** Type a name in the **Table space name** box (for example: **TSPRGR16K**) and then click **Next**.
- **b** Set the type of table space to **Regular** and then click **Next**.
- **c** Select the buffer pool that you created in Step 8 and then click **Next**.
- **d** Set space management to **System-managed space** and then click **Next**.

e On the **Define containers for this table space** page, click **Add**. In the Define Container dialog box, type a name in the **Container** box (for example; **cntr1a_16K**) and click **OK**. The container name then appears on the **Define containers for this table space** page. Click to select this container name and then click **Next**.

f On the **Specify the extent and prefetch sizes for this table space** page, click to select the average size of a table in this table space. Click **Next**.

g On the **Describe hard drive specification** page, define the specifications for the hard drive where the DB2 database resides. Click **Next**.

h On the **Specify the dropped table recovery option for your new table space** page, if you want to recover the table space, click the **Enable dropped table recovery** option. Click **Next** and then click **Finish**.

11 In the right pane of the Control Center, right-click the new tablespace name you have created and select **Privileges**. On the **Group** tab, click **Add**, select the **Public** group, and click **OK**. Set the **Privileges: Use** area to **Yes** and click **OK**.

12 Under the *database-name* folder for the database you have created, right-click the **Table Spaces** folder and click **Create > Table space**. In the Create Table Space Wizard:

a Type a name in the **Table space name** box (for example: **TSPTMP16K**) and then click **Next**.

b Set the type of table space to **System temporary** and then click **Next**.

c Select the buffer pool that you created in Step 8 and then click **Next**.

d Set space management to **System-managed space** and then click **Next**.

e On the **Define containers for this table space** page, click **Add**. In the Define Container dialog box, type a name in the **Container** box (for example; **cntr1b_16K**) and click **OK**. The container name then appears on the **Define containers for this table space** page. Click to select this container name and then click **Next**.

f On the **Specify the extent and prefetch sizes for this table space** page, click to select the average size of a table in this table space. Click **Next**.

g On the **Describe hard drive specification** page, define the specifications for the hard drive where the DB2 database resides. Click **Next**.

h On the **Specify the dropped table recovery option for your new table space** page, if you want to recover the table space, click the **Enable dropped table recovery** option. Click **Next** and then click **Finish**.

13 Right-click the **DB2** folder, and click **Stop**. Select the **Disconnect all applications** check box in the Confirm Stop dialog box. Then, from the **DB2** folder name, click **Start** to restart the database using the larger page size.

14 In the left pane of the Control Center, for each database created, right-click the *database-name* folder and select **Configure Parameters** to open the Database Configuration dialog box.

   a Under the **Performance** section, set the values for **APP_CTL_HEAP_SZ**, **APPLHEAPSZ**, and **SORT_HEAP** to **1024**.

   b Under **Logs** section, set the values for **LOGFIL_SIZ** to **1000**, **LOGPRIMARY** to **15**, and **LOGSECOND** to **10**.

   c Click **OK**.

15 Right-click the **DB2** folder and click **Stop**. Then click **Start** to restart the database with the configuration parameters.

Installing a DB2 Client

To use the DB2 database, all ClearQuest native clients on UNIX and the ClearQuest Administration Tools host must install DB2 client software on their local hosts. To install DB2 client software, see the IBM documentation.

Note: The DB2 Administration Client must be installed on all hosts.

Creating a DB2 Database Alias

Before using ClearQuest native clients on UNIX or the ClearQuest Administration Tools on Windows, all users must create a DB2 database alias. For more information, see *Configuring a Database Alias to Connect Native Clients to a DB2 Database* on page 71 and *Creating a DB2 Database Alias* on page 65.

Configuring ClearQuest Licensing

3

This chapter explains licensing tasks for installing Rational ClearQuest as a new point product.

Rational ClearQuest uses Rational Common Licensing, a model based on FLEXlm, the license management tool from GLOBEtrotter Software, Inc. It requires suite or ClearQuest licenses to run ClearQuest programs or issue ClearQuest commands.

Licenses are usually set up when a Rational Suite product is installed. If you have installed a Rational Suite product, you can skip this chapter. If you are adding ClearQuest to your system, you must request new license keys. You cannot use the existing suite licenses for new installations of point products.

To configure ClearQuest licensing, you must first determine the type of licenses you will use:

- **Node-locked licenses**. If you choose node-locked licenses, you must specify in the license map file that ClearQuest is to use the Rational Suite license keys. For information about modifying settings in the license map file, see *Customizing License Usage Order* on page 45.
- **Floating licenses**. If you choose floating licenses, you must set up a license server to control the use of the licenses. After a period of inactivity, a ClearQuest user's license may be taken by another user. For information about setting up a license server, see *Using license_setup* on page 37.

You must also choose between temporary licenses and permanent licenses:

- **Temporary licenses**. Startup, temporary, or evaluation licenses are provided on the Rational License Key Certificate included with your product's release media.
- **Permanent licenses**. Permanent or Term License Agreement (TLA) licenses can be obtained from the Rational AccountLink Web site or, if you do not have Internet access, by fax. For more information, see *Using AccountLink* on page 36.

This following sections explain these licensing procedures:

- Acquiring licenses for ClearQuest from the AccountLink Web site: see *Using AccountLink* on page 36.
- Setting up a license server host: see *Using license_setup* on page 37.

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- Installing permanent or temporary license keys on a new or existing license server host: see *Licensing Options* on page 41.
- Administering licenses: see *Administering Licenses* on page 43.

Using AccountLink

The AccountLink Web site, www.rational.com/accountlink, simplifies the process of obtaining license keys for ClearQuest and other Rational products. To use AccountLink, gather the information for the license request form; then use any Web browser to access the AccountLink Web site.

Note: If you are using the temporary or evaluation license key, you can skip this section.

Information You Need for AccountLink

In addition to contact information, you must provide the account and product information in Table 6 to obtain a file containing ClearQuest license keys.

Table 6 AccountLink Information

Data	Notes	Your entry
Your Rational account number	Source: Your Rational license key certificate.	
License type	Floating or node-locked for ClearQuest licenses; floating or node-locked for suite licenses	
Rational product line	ClearQuest is part of the ClearQuest product line.	**CLEARQUEST**
Product name	Source: Your Rational license key certificate.	**Rational ClearQuest**
Quantity	Source: Your Rational license key certificate. This is the number of licenses that you have purchased.	

Table 6 AccountLink Information (Continued)

Data	Notes	Your entry
Host name and host ID	This is the name and host ID of the server machine for floating licenses or the machine on which ClearQuest will be used for node-locked licenses. If the license server host is different from the installation machine, you must have remote shell access from the installation machine to the license server host. In addition, the installation directory must be accessible from the license server host. If you do not know the host ID of your license server host, download the tool **gethostinfo.sh** from AccountLink, and run it on the computer that will be your license server host.	

When the process is complete, you will receive a file named license_for_*server name*.upd by e-mail.

If you have chosen to use floating licences, you must run **license_setup** to set up a license server.

Using license_setup

After you obtain your licenses, you can run **license_setup** to install the licenses on an existing license server or to set up a new license server to which you can add the licenses.

Note: In this document, the pathname where the license server is installed is referred to as *rational_dir*.

Information You Need for license_setup

Before you run **license_setup**, collect all the information in Table 7.

Table 7 License Request Information

Data	Notes	Your entry
Host name or IP address of the computer on which the license server is to run	If this computer (the license server host), is different from the installation host, you must have remote shell access from the installation machine to the license server host. In addition, the installation directory must be accessible from the license server host.	
License server port number	Default is 27000. This is the port at which the license server listens for license requests. This port number must not be in use by any other application on the license server host. Use **ypcat** to list ports in use on a host, or look in /etc/services.	
Pathname of installation directory	If you are installing a Rational License server, *rational_dir* is the directory in which you will install Rational Common Licensing software. If you are using an existing Rational License server, *rational_dir* is the pathname under which the server is installed.	
Pathname of license file	The installation program will suggest a default for a new license file. If you want to use an existing license file, enter its full pathname instead of the default.	
License keys for each product you are installing OR Full pathname of the .upd file to import licenses from	Source: Your Rational license key certificate (temporary or evaluation keys) OR Rational AccountLink (.upd file with permanent or TLA keys).	

Table 7 License Request Information (Continued)

Data	Notes	Your entry
License key type	Source: Your Rational license key certificate. Must be permanent, TLA, startup, or evaluation. **Note:** To enter the permanent license key after you have been using a startup or evaluation license, see *Replacing Temporary License Keys with Permanent License Keys* on page 41.	
License quantity	Source: Your Rational license key certificate. (Note that **0**=uncounted.)	
License expiration date	If you have a permanent license, enter **p**. Source for other license types: Your Rational license key certificate or an e-mail message from Rational Software. If you have a startup or evaluation license, enter the date in the *dd-mm-yyyy* format. (The field is not case-sensitive.)	
User IDs for everyone who will be using ClearQuest (optional)	You can use the Rational Common Licensing options file to provide tighter control over which users and groups can acquire licenses. If you do not want to exercise this level of control, **license_setup** will populate the file with "dummy" names, one for each license you have purchased, and all users will be able to acquire licenses.	

If you are going to set up a new Rational License server, select an appropriate host computer first.

Selecting a License Server Host

When selecting a license server host, choose a computer with these characteristics:

- Is highly available and infrequently rebooted
- Is accessible over the network by all ClearQuest hosts. Only network access, as verified by a UNIX command like **ping**, is needed when a client requests a license. The ability to access the license server host's file system is not required for any purpose other than adding new licenses to the host.

Because ClearQuest does not need to run on the license server host, you can select any computer that satisfies these requirements. If the license server host has an architecture that ClearQuest supports, you can also install ClearQuest software there.

Running license_setup from the Release Area

The **license_setup** program is included as part of the ClearQuest release area directory.

To run **license_setup**:

1. Log on to the computer that will be the license server host. Log on as an ordinary user who has rights to create files in the directory where you intend to install the Rational Common Licensing server. Do not log on as **root**. Installing the Rational Common Licensing server while you are logged on as **root** will cause the Rational Common Licensing server processes to run as **root**, which is not necessary and can pose a security risk.
2. Go to the subdirectory within the networkwide release area for the appropriate architecture:

   # **cd /net/bigserver/usr/cq_rls** *(typical release area)*

   # **cd sun5/clearquest** *(architecture-specific location within release area)*

   For a list of supported architectures and their abbreviations, see *Architecture Mnemonics and mount Commands* on page 50.
3. Run the **license_setup** program:

   ./license_setup

The **license_setup** program presents the **Licensing Options** menu.

Running license_setup from a Client Installation

The **license_setup** program is included as part of the native client installation in the *cquest-home-dir* directory.

To run **license_setup**:

1. Log on to the native client host as the user as the as same user who has run **install_release** on that host.
2. Go to native client installation directory:

   # **cd** *cquest-home-dir* *(client installation directory)*

3. Run the **license_setup** program:

./license_setup

The **license_setup** program presents the **Licensing Options** menu.

Licensing Options

The **license_setup** program supports three licensing options:

- Use an existing Rational Common Licensing license file or server
- Set up a permanent or TLA license file and server
- Set up a temporary (evaluation or startup) license file

After you select an option, **license_setup** prompts you through the installation, providing detailed instructions along with default choices. The defaults appear in brackets, for example `[2]`. To accept a default, press RETURN.

Using an Existing License File

Select this option if you have an existing license file for version 2000.02.10 or later of Rational Suite DevelopmentStudio. Selecting this option does not upgrade the license server software.

Setting Up a Permanent or TLA License File and Server

Select this option to do either of the following:

- To install a Rational Licensing server and then import a new license file obtained from AccountLink or by fax
- To import a new license file to an existing Rational Licensing server

Setting Up a Temporary License File

Select this option if you are using temporary or evaluation licenses. The license key and related information are provided on the Rational License Key Certificate, which is included with your product's release media.

Replacing Temporary License Keys with Permanent License Keys

If you have installed a temporary, startup, or evaluation license, you must install permanent licenses to continue to use the product. To install permanent licenses, use AccountLink to request the permanent license keys; then run **license_setup** and specify option 2.

Running license_check from a Client Installation

The **license_check** program is included as part of the native client installation in the *cquest-home-dir* directory. After using **license_setup**, use **license_check** to validate that your native client installation is licensed.

To run **license_setup**:

1. Log on to the native client host as the same user who has run **install_release** on that host.
2. Go to native client installation directory:

   # **cd** *cquest-home-dir* *(client installation directory)*

3. Run the **license_check** program:

   ./license_check

The **license_check** program displays the **Rational ClearQuest for UNIX - Configuration Selection Menu**.

Common Questions About license_setup

This section contains answers to some common questions about the **license_setup** program.

Can I rerun parts of the installation?

Yes. You can rerun **license_setup** whenever you need to add or change licenses. You can also run the **license_check** program to validate the license you already have. **license_check** is installed in the same directory as **license_setup**.

Do I have to reenter my license server information each time I install a product?

No. You enter this information only once. The **license_setup** program saves the information you enter about yourself and about the host to be used as the license server for ClearQuest licenses in two text files in the *rational_dir***/defaults** directory: license_setup.*username*, which contains information about you and your license server, and license_setup.CQUEST.*release-number*, which records product-specific information for ClearQuest. The **license_setup** program reports the location of these files when you quit the program. The next time you run **license_setup**, it uses the saved configuration information.

Do I need to install all my licenses on one server?

No. You may spread your licenses out over several servers, as long as each client is configured to know which server to contact when requesting a license.

Which type of product license key should I install?

If you already have your permanent license key, you can install it right away. If you do not, you must obtain a permanent key from AccountLink, as described in *Using AccountLink* on page 36, or use the temporary key on your Rational License Key Certificate. To ensure uninterrupted use of ClearQuest, install your permanent license key as soon as possible.

Administering Licenses

This section summarizes the process of allocating and licensing ClearQuest MultiSite, using the license manager, and customizing license usage order. For more information, see the *License Management Guide* for Rational Suite.

Licensing ClearQuest MultiSite

Any access to a replicated database requires both a ClearQuest and a ClearQuest MultiSite license. For more information, see the *Administrator's Guide* for Rational ClearQuest MultiSite.

You can calculate the number of ClearQuest MultiSite licenses that your site needs by determining how many developers will access replicated databases. If all of your developers will access replicated databases, you need the same number of ClearQuest MultiSite licenses as ClearQuest licenses. If some developers will not access replicated databases, you can purchase fewer ClearQuest MultiSite licenses.

For example, a company has two sites, with 20 developers at site A and 5 developers at site B. The company has three databases at site A; two of them will be replicated to site B and one will not be replicated. Five developers at site A will access only the unreplicated database, and the remaining 15 will work in all databases. Therefore, the company needs to purchase the following numbers of licenses:

Site	ClearQuest licenses	ClearQuest MultiSite licenses
A	20	15
B	5	5

Note: This example assumes that you purchase a ClearQuest license for each user. If you have fewer ClearQuest licenses than users, you can purchase a proportionate number of ClearQuest MultiSite licenses. For example, if site B purchased three ClearQuest licenses, it would also purchase three ClearQuest MultiSite licenses.

Using the License Manager

The Rational Common License Manager monitors license access, simultaneous use, idle time, and so on. It includes the following components:

- A vendor daemon named **rational** that dispenses ClearQuest licenses. The **rational** daemon is used for all licensed Rational Software products.
- A license manager daemon named **lmgrd** that is used by all licensed products that use license servers based on FLEXlm, such as Rational License server. The **lmgrd** daemon does not process requests on its own, but forwards requests to the appropriate vendor daemon.
- A license file that you maintain.

Verifying That Rational Common Licensing Is Working

After you install your license key, the **license_setup** program reminds you that you must configure your license host to restart the license server whenever it reboots. The **license_setup** program gives you instructions for doing this.

To verify that your Rational Common Licensing is operational and that the daemons are running, type either of the following commands on your license server:

 # ps axw | grep -v grep | egrep "lmgrd|rational"
 # ps -e | grep -v grep | egrep "lmgrd|rational"

The output should include lines similar to the following (your pathnames will be different):

```
538 ?? S 0:03.50 /rational/base/cots/flexlm.7.0f/platform/lmgrd
                 -c /rational/config/servername.dat
                 -l /rational/config/servername.log
539 ?? I 0:00.90 rational -T servername 6.0 3 -c ...
```

Using Rational Common Licensing Commands

The Rational Common Licensing License Manager supports the following commands for system administration.

Command	Description
lmdiag	Diagnoses problems when you cannot check out a license
lmdown	Shuts down the license and vendor daemons
lmhostid	Reports the license manager host ID of a workstation
lmreread	Rereads the license file and starts new vendor daemons
lmstat	Reports status on daemons and features used
exinstal	Reports on licenses in the license file that you specify

Customizing License Usage Order

By default, a Rational product requests licenses in this order:

1. Node-locked license
2. Floating license
3. Suite license
4. Point-product license

For example, ClearQuest is sold as part of Rational Suite and as a stand-alone product. It requests the suite license before it requests a ClearQuest license. If a node-locked license is available among the group of suite licenses, it claims that license.

You can customize the license usage order in the License_Map file on a per-product basis.

The License Map File

A default License_Map file is created and stored in the config subdirectory when you install a Rational Suite product. The file is initially set to claim a suite license for all products. It contains lines of the following format:

```
component_designator product_designator {, product_designator}
```

For ClearQuest, the initial setting should be similar to this:

```
ClearQuest:1.0 DevelopmentStudioUNIX:1.0, standalone
```

This line tells a ClearQuest license client to first request a Rational Suite DevelopmentStudio license. If a Rational Suite DevelopmentStudio license is unavailable, the client will request a stand-alone ClearQuest license. Depending on the Suite product you install, the line you see may differ from the example in this manual.

You can modify the settings to customize license usage for all users or for individual users.

Run the user setup script (such as **rs_setup.csh** or **rs_setup.ksh**) to verify that the environment variable RSU_LICENSE_MAP_ENV is set. This environment variable is needed in finding the License_Map file to be used. If the environment variable is not set, the setup script sets the pathname to the default license map file, for example, config/License_Map.

Creating Networkwide Resources

4

Establishing a release area on a release host is a prerequisite to installing Rational ClearQuest on any host in your network. Because you cannot install directly from the CD to a host, you must load the files to a release host to make them available over the network. This chapter explains how to do this.

Selecting the Hosts for Networkwide Resources

You can have one host for the license server and the release host, or you can distribute across multiple hosts.

Release Host

One host in the network acts as the networkwide release host, housing a release area that provides storage for the entire ClearQuest distribution: executable files, configuration files, online documentation, and so on. This host is essentially a file-server host. It must be highly available, that is, with fast file system access, visible to all other ClearQuest hosts, robust, and infrequently rebooted.

Note: If you choose to install ClearQuest from the network, the UNIX file server must be NFS mountable by all ClearQuest client hosts and by the Oracle database server.

ClearQuest programs do not need to run on the release host; thus, it can be a nonsupported architecture. For example, it can be a multi-tera-byte mass-storage system. (If the release host has an architecture that ClearQuest supports, you can also install the ClearQuest software there, enabling the host to access a ClearQuest database and to run ClearQuest administration and client programs.)

If you are upgrading from any previous ClearQuest release, see Chapter 7, *Upgrading ClearQuest*.

Note: Most examples in this chapter refer to specific architectural mnemonics, such as **sun5**, or to specific releases, such as 6.0 (for 2003.06.00). You will have to substitute mnemonics or release numbers appropriately.

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Rational License Server Host

One or more hosts in the network act as *license server hosts*, as described in Chapter 3. A license server host must be highly available; if it becomes unavailable, so do the licenses defined in its license database file. (A user may be able to continue working for 15 minutes or so after the link to the license server host fails.)

If you are upgrading from a previous release you can still use your existing license server host. The ClearQuest licensing scheme has not changed; thus, no licensing-level changes are required on that host.

Setting Up the Release Host

Setting up the release host involves the following steps:

1. Selecting a release area location. See *Selecting a Release Area Location* on page 48.
2. Exporting the release area. See *Exporting the Release Area to Make It Accessible to All Hosts* on page 49.
3. Loading files from the ClearQuest distribution media onto the release host's file system. See *Loading the Software Distribution from CD* on page 50.
4. Running the **site_prep** script. See *Running the site_prep Script* on page 51.
5. (Optional) Allowing non-**root** users to install ClearQuest on individual hosts. See *site_prep Options* on page 52.
6. Setting the ownership and access modes of the release area and files. See *Running the site_prep Script* on page 51.
7. Verifying **site_prep** selections. See *Verifying site_prep Selections* on page 53.
8. Ensuring that other hosts in the network can access the files. See *Ensuring That the Release Area Is Accessible to All Hosts* on page 54.
9. Publicizing the location of the release area to all client hosts. See *Publicizing the Location of the Release Area* on page 54.

Selecting a Release Area Location

To select a release area location:

1. Log on as **root** to the computer you have selected to be the networkwide release host.
2. Decide where to create the ClearQuest release area, into which you will load the contents of the ClearQuest distribution medium.

Note: You must select a location in a file system that is (or can be) NFS-mounted by all current and prospective ClearQuest client hosts. Those hosts must not mount the release-area file system with the **nosuid** option.

The file system must have sufficient disk space to hold the release area. For more information, see *System Requirements* on page 7.

By default, the directory for the release area is /usr/clearquest_rls.

Exporting the Release Area to Make It Accessible to All Hosts

Make sure that the release host exports the directory /usr/clearquest_rls. For details, see Table 8 on using the **export** command.

Setting up the export is architecture specific; see Table 8. For details, see the standard reference pages for these files and programs.

Table 8 Setting Up Export

Architecture	Steps to export ClearQuest release area
Solaris SPARC	1. Revise /etc/dfs/dfstab: **share -F nfs -o** *options* **/usr/clearquest_rls** 2. Enter command: **#/usr/sbin/shareall -F NFS**
HP-UX 11	1. Revise /etc/exports: **/usr/clearquest_rls** *options* 2. Enter command: **# /usr/sbin/exportfs -a** *other-options*
AIX	1. Revise /etc/exports: **/usr/clearquest_rls** *options* 2. Enter command: **# /usr/sbin/exportfs -a** *other-options*
Red Hat Linux	1. Revise /etc/exports: **/usr/clearquest_rls** *options* 2. Enter command: **# /usr/sbin/exportfs -a** *other-options*

Architecture Mnemonics and mount Commands

Table 9 provides the architecture mnemonic and sample **mount** commands for supported platforms. The architecture mnemonic is used as the name of the root of the release area for each platform or set of platforms.

Table 9 Mnemonics and mount Commands

Architecture	Mnemonic	Sample mount command
Solaris SPARC	`sun5`	Not necessary (if Volume Manager is in use)
HP-UX 11	`hp11_pa` [1]	**mount -F cdfs -r /dev/dsk/c3d0s2/cdrom**
AIX	`aix4_power`	**mount –o ro –v cdrfs /dev/cd0 /cdrom**
Red Hat Linux	`rhat_x86`	**mount –r /dev/cdrom /mnt/cdrom**

1. When installing ClearQuest on an individual host, you must use the appropriate release area for the architecture on your host. For example, if you have HP-UX 11 on your host, you must install from the **hp11_pa** release area.

Loading the Software Distribution from CD

ClearQuest software is distributed on a ISO-9660 formatted CD (**High Sierra**, **hsfs**, **cdfs**).

To copy the software from the CD to the computer that will serve as the networkwide release host:

1. Log on as **root** to a host with a CD drive. Ideally, this is the networkwide release host itself. But if that host does not have a CD drive, log on to a host that is NFS-accessible to the networkwide release host.
2. (If necessary) Create a mount point directory for the CD:

   # **mkdir /cdrom**
3. Place the ClearQuest CD in the drive. On Solaris hosts, the volume manager mounts the CD automatically, so you can skip to Step 5.
4. Mount the CD. For the **mount** command for your platform, see Table 9.

   Note that CD drive names vary from host to host. Thus, you may need to adjust the **mount** command in Step 5.
5. If the CD drive is not on the networkwide release host, use NFS facilities to export the CD drive's mount point from its host, and mount it on the networkwide

release host. For pathnames of the **export** command for each architecture, see Table 8. For example:

On the host with the CD drive:

```
# /usr/etc/exportfs –i –o ro  /cdrom
```

On the release host:

```
# mount drive-host:/cdrom  /cdrom
```

6 Log on as **root** to the networkwide release host. From the Bourne shell, run the script to load the ClearQuest software from the CD to the networkwide release host:

```
# cd  /cdrom     (most architectures)
  or
# cd /cdrom/rational  (on Solaris)
# sh  copy_rel.sh
```

Running the site_prep Script

After the distribution has been loaded, run the **site_prep** script. **site_prep** is *required* to prepare the release area for installation of ClearQuest software on individual hosts. This script requires **root** user permissions and does the following:

- Specifies the license server host
- Specifies if there is e-mail notification
- Establishes a default e-mail address if e-mail notification is enabled
- Establishes ownership and sets permissions on all files in the release area

You must run **site_prep** for each architecture that your site supports. To guarantee access, log on to the release host as **root**. Change to the install subdirectory for the first supported architecture. For architecture mnemonics, see Table 9.

For example:

```
# cd  /usr/clearquest_rls/v6.0
# cd  sun5/clearquest/install
# ./site_prep
```

If you specify no options, **site_prep** does the following:

- Makes **root** owner of all files in the merged release area and disables writes to all files
- Prompts you to provide this information:
  - Name of *license server host*

- Whether e-mail notification will be enabled on clients
- When e-mail notification is enabled, the default e-mail address to send notification

The names you specify are supplied later as the defaults when **install_release** is run to install individual hosts.

Remember to run **site_prep** for any additional architectures your site supports.

site_prep Options

Usage: **site_prep [–enable_non_root | –disable_non_root]**
[–enable_email | –disable_email]
[–email_address email-notification-address]
[–license_host license-host-name |–lh license-host-name]
[–no_query | –nq] [–help] [–chmod]

Option	Description
–enable_non_root	Allows non-**root** users to install this release.
–disable_non_root	Reverts to allowing only **root** users to install this release.
–enable_email	Enable e-mail notification. After e-mail is enabled, an e-mail notification address must be specified.
–disable_email	Disables e-mail.
–email_address email-notification-address	Specifies a default e-mail address to send notification.
–license_host license-host-name	Specifies location of license host.
–no_query	If values *are not specified using the command line*: sets license host to `Unknown`; leaves the setuid mount options for install hosts unchanged; suppresses querying for other values not set in the command line.
–help	Displays this summary of **site_prep** options.
–chmod	Disables write access to release area files and directories.

Allowing Non-root Users to Install ClearQuest

To allow ClearQuest installation without becoming **root** user use the **–enable_non_root** option. This is always done as a separate invocation of **site_prep**. To do so:

```
# site_prep –enable_non_root
```

If you have enabled non-**root** installation, enter the following command after all ClearQuest hosts have been installed to eliminate the possibility of a security breach. (This is always done as a separate invocation of **site_prep**.) Rational has taken care to minimize the security risks of a non-**root** ClearQuest installation, but this step provides extra assurance. To do so:

```
# site_prep –disable_non_root
```

Specifying Regionwide Product Resources

If you do not specify the name of your license host in the **site_prep** command line, you are prompted to enter it. The **–no_query** option suppresses the query, but sets the values as specified in the command line. If this name is not specified, **–no_query** sets its value to `Unknown`.

When you install ClearQuest on individual hosts (for supported platforms, see *System Requirements* on page 7), this location is offered as the default. (If your network has several license server hosts, some or all users must override the default.)

Setting Protections on Files in the Release Area

If you did not load the distribution as **root**, the directories may have been created with write access enabled. The **–chmod** option corrects the write-protection problem.

Verifying site_prep Selections

The **site_prep** script creates or edits a text file named site.dat under the /clearquest directory in each architecture-specific directory of the release area for which **site_prep** is run. For the example release area and scenario mentioned in *Running the site_prep Script* on page 51, the directory is /usr/clearquest_rls/v6.0/sun5/clearquest.

For each architecture that your site supports, examine site.dat to verify that there are no typographical errors in the information provided to **site_prep**. If the information is incorrect, rerun **site_prep** for that architecture.

Ensuring That the Release Area Is Accessible to All Hosts

Make sure that the exported directory on the release host, for example /usr/clearquest_rls, is accessible to all client hosts. For details, see Table 8 on using the export command.

Publicizing the Location of the Release Area

To install ClearQuest on their own client hosts, users need the pathname for the ClearQuest release area.

Proceed to Install Individual Hosts

The setup of the networkwide release host is now complete. You have not installed any ClearQuest product on this host; you have only loaded the software there and set some default values to be used by the **install_release** program, which installs ClearQuest on individual hosts.

You can now install ClearQuest around the network yourself or allow users to perform their own installations. Installation on individual hosts is the subject of Chapter 5, *Installing ClearQuest on Individual Hosts*.

Installing ClearQuest on Individual Hosts

5

This chapter presents both background information and detailed instructions for installing Rational ClearQuest on individual hosts.

The **install_release** program handles the ClearQuest installation on UNIX. **install_release** separates the choice of how the software is installed on the local system—called the installation model and method—from the choice of ClearQuest product options being installed.

Note: ClearQuest documentation uses *cquest-home-dir*. The default ClearQuest installation directory is /opt/rational/clearquest. Substitute your own local installation directory for *cquest-home-dir*, whenever you encounter it. If you choose to install to a directory that is different from the default, you *cannot* install to a directory named /usr/atria/clearquest.

Client Hosts

This section explains installation issues for client hosts.

ClearQuest Considerations

- To configure the ClearQuest schema repository and user databases, you must first install ClearQuest Administration Tools on a Windows host.
- Using the ClearQuest installation for individual hosts, you can perform a UNIX client installation.

If your ClearQuest database is Oracle on Solaris or HP-UX or AIX or Red Hat Linux, you must install the OpenLink Broker on the database host and an Oracle client on the ClearQuest administrator host. For more information, see *Installing OpenLink Request Broker with Oracle* on page 75 and *Creating an Oracle Database Alias* on page 66.

If your ClearQuest database is DB2 on Windows or AIX or Red Hat Linux, for database connectivity you must install the DB2 client on the administrator host and on native clients. For more information, see *Creating a DB2 Database Alias* on page 65 and *Configuring a Database Alias to Connect Native Clients to a DB2 Database* on page 71.

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Client Hosts

Your network may include a large number of potential ClearQuest client hosts. You can allow users to run **install_release** themselves; they may not need **root** privileges to run the program (see *Allowing Non-root Users to Install ClearQuest* on page 53).

Selection Criteria

ClearQuest client programs make considerable demands on a host's processing power and memory. The most successful approach is to have each developer use their own computer, which must meet or exceed the performance characteristics described in *System Requirements* on page 7.

Several users can share a client host (for example, by using X terminals) if the host can provide appropriate multiples of these single-user performance specifications—both processing power and memory.

Defining the Network Location of the Client Host

The **install_release** program needs to know the NFS mount point for your environment to install successfully.

install_release will first check for the environmental variable NFS_MNT. If this variable is set, **install_release** accepts its value as your NFS mount point.

If this variable is not set, **install_release** tries the NFS mount point **net**, then **nfs**, then **hosts**, to determine the NFS mount point.

Therefore, if the mount point used in your environment is not **/net**, **/nfs**, or **/hosts**, you must set NFS_MNT to allow successful installation.

For example, if your NFS mount point is **/accts**, you must set NFS_MNT to **accts** with the following command:

setenv NFS_MNT accts

Note: This command assumes C shell.

Maintenance Requirements

A client host requires no maintenance specific to ClearQuest.

Operating System Patches

ClearQuest installation interacts with a host's operating system at a lower level than many other applications do. Accordingly, ClearQuest installation may be more

sensitive to OS-level bugs, particularly kernel bugs. Rational works closely with hardware vendors to maintain a current list of required and recommended operating system patches. This list is available in the *Release Notes*. Such patches are available from your hardware or OS vendor. Before installing ClearQuest, obtain and install the appropriate operating system patches.

Installation Methods and Models

When you invoke **install_release**, you are presented with the following installation methods:

- Select **Local Install** to install software on the local system (the one you are currently logged on to).
- Select **Local Deinstall** to remove software from the local system.

After you select the installation method, **install_release** prompts you to select an installation model:

- **Standard** — Regular installation, with links to the release area
- **Full-Copy** — Regular installation, with no links to the release area

The model you select is used for all selected components in a given invocation of **install_release**. You may want to review the models and their characteristics before running **install_release** for the first time.

Your choice of model determines whether the contents of *cquest-home-dir* are files or a combination of files and links to the release area). In choosing the model, you need to consider the amount of available storage and the expected patterns of use for the target computer:

- Is the computer a database server or a client or both?
- Does it need to operate even when the network release area is unavailable?
- Does it have adequate local disk space for the ClearQuest installation?
- Is *cquest-home-dir* on a read-only partition?

You may also want to consider the administrative advantages of one installation model over another:

- The **Standard** installation model is designed to be the best combination of features, reliability, performance, and disk space use.
- The **Full** installation model copies all of the software from the release area to the local host. It has no dependence on the network, but requires a large amount of disk space.

The Standard Installation Model

The **Standard** installation model creates *cquest-home-dir* on the target system as a directory and populates it with a combination of locally installed files and links to the release area. All shared libraries and critical executables are copied to the target system. Other files, such as Help and various nonessential scripts and utilities, are installed as links to the release area. Systems installed by using the **Standard** model perform all necessary ClearQuest functions as long as the necessary ClearQuest databases and the license server hosts are accessible. There is no significant performance penalty associated with the **Standard** installation model, and it consumes significantly less disk space than the **Full-Copy** model.

We recommend the **Standard** installation model for any client with adequate disk space that does not have to operate when disconnected from the network.

The Full-Copy Installation Model

The **Full-Copy** installation model creates *cquest-home-dir* directory on the target system and populates it completely with files. Systems installed by using this model perform all ClearQuest functions as long as the necessary ClearQuest databases and the license server hosts are accessible.

We recommend the **Full-Copy** installation model for any client with adequate disk space that does have to operate when disconnected from the network.

The Deinstallation Model

The **Local Deinstall** method provides you with a list of currently installed products and components to remove from the local system. All installed products or components can be deinstalled. Selecting a component for deinstallation also causes any other components that depend on that component to be deinstalled at the same time. After all the selections have been made, you are prompted to finish the deinstall.

Local Deinstall preserves the ClearQuest database registry directories located at /opt/rational/clearquest/CQDB_rgys in /var/tmp/Rational.preserve.

Compatibility Between Models

If you want to change from one installation model to any other, it is recommended that you deinstall your currently installed products before you install with the new model.

Note: The installation script warns you if you attempt to change models when installing new software.

Order of Installation

We recommend that you deinstall any previously installed products before you install the new release. Deinstalling cleans up obsolete links and files.

It is important to install hosts in this order:

1. **License server host,** on which important site information is stored. (For more information, see Chapter 3, *Configuring ClearQuest Licensing*.)
2. **ClearQuest client hosts on UNIX**, on which users run ClearQuest client programs.

Selecting the Products for Installation

install_release presents a list of products that you can install. This list is based on the contents of the networkwide release area from which **install_release** is being run and can include any ClearQuest product option for UNIX. In addition, you can make any of the following procedural selections:

Selection and name		Description
x	**Toggle expanded descriptions**	Alternates display of list of products with descriptions and list of products without descriptions. By default, product descriptions are not displayed.
a	**Select all**	Selects all listed components.
f	**Finish selection**	Indicates that you have selected everything you want to install/deinstall and are ready to complete the installation/deinstallation.
r	**Reset selections**	Clears everything.
q	**Quit**	Quits **install_release**.

Select each product, one at a time, by typing its number. **install_release** responds by displaying the list with an asterisk to the left of each selected product.

Note: You can select products by entering multiple numbers separated by spaces. For example, you can enter the following on a single line:

1 f

Running the Installation Script

After you make all the preparatory selections, the host is ready for ClearQuest installation.

Before you begin performing installations:

- Verify that the ClearQuest release area is visible from every host to be installed. This is typically done through NFS mounts, symbolic links, or both.
- Verify that each host has adequate disk space for the installation. See *System Requirements* on page 7.

After the **site_prep** script runs, default values for most **install_release** pathname and host name options are established. If you are not going to use the default choices that **site_prep** supplies to **install_release**, make sure you have the following information before you run **install_release**:

- The name of your license server host
- If e-mail notification is enabled, the default e-mail address to receive notifications

Note: The following examples use the number sign (#) as the shell prompt; this is the standard prompt for the **root** user. The examples also assume use of the C shell for commands that set environment variables.

Invoking install_release

To invoke and run **install_release**:

1. Log on to the host to be installed. If non-**root** installation has been enabled at your site (see *Allowing Non-root Users to Install ClearQuest* on page 53), you can log on as a nonprivileged user. Otherwise, you must log on as **root** user.

   Note: If the **site_prep** script was not run on the release area, **install_release** aborts. In addition, before running **install_release** on RedHat Linux platforms, you must set the TZ environment variable. For more information, see *Setting the TZ Environment Variable on Red Hat Linux* on page 80.

2. Go to the install subdirectory within the networkwide release area for the appropriate architecture:

   # **cd /net/bigserver/usr/clearquest_rls/v6.0** *(typical release area)*

   # **cd sun5/clearquest/install** *(architecture-specific location within release area)*

   For architecture mnemonics, see *Architecture Mnemonics and mount Commands* on page 50.

3 Invoke the **install_release** program:

./install_release

After a series of legal notices, you see the list of ClearQuest product options that can be installed from this release area. In addition, you are informed of both the temporary and permanent locations of a log file of your installation. The log file includes everything you see during the installation and the results of your actions.

If the installation completes without generating informational messages, the log file in /tmp is deleted. If the installation fails, the log file is preserved in /tmp. If the installation completes, but generates error or informational messages, the log file is placed in /var/adm/rational/clearquest/log/Rational_install.*time-stamp*.

You can type **q** at any prompt to quit the installation.

4 Choose your installation method (**Local Install** or **Local Deinstall**).

5 The Rational license agreement and the third-party license agreements are displayed if you have selected the **Local Install** installation method. When prompted to accept the terms of each of these license agreements, type **y** to continue with the installation.

6 Choose your installation model. All products installed in this session use the model you choose. Selecting the **Standard** model results in an optimal trade-off between reliability and performance.

7 Specify the directory on the local host in which to place the products that you plan to install.

Note: The directory location *cannot* be a networkwide release path. For example /net/*machine-name*/opt/rational/clearquest is not a supported install location.

Unless you have been instructed otherwise, we recommend that you take the supplied defaults [listed in square brackets] on all such prompts. Take the default by pressing RETURN.

8 Name the location of the networkwide release area. This is where any files or directories installed as symbolic links actually reside.

9 Now you are presented with a list, including ClearQuest, as the installation options.

```
1 : ClearQuest
a : Select all
f : Finish selection
x : Toggle expanded descriptions
r : Reset selections
q : Quit
```

Select ClearQuest by number. To select the entire list, enter **a** for **a**ll. If you change your mind, enter **r** for **r**eset. If you need more information, enter **x** to e**x**pand the component descriptions. When you have chosen all the products you want to install, enter **f** to indicate that you are **f**inished making selections.

10 After you enter **f**, **install_release** displays a complete list of all the *components* you selected for installation. Note that some of these components were not on the list of selectable items. This list appears primarily so that it can be recorded in the install log file. The components are then installed one at a time.

Unless you have been instructed otherwise, accept the defaults [in square brackets] by pressing RETURN at the prompt. The defaults on your system will the default values defined using **site_prep**. (See *Running the site_prep Script* on page 51 to see where these default names come from.) For example:

```
Rational License Server Host[neon]:
Enable email notification (yes, no, quit) [yes]
Default e-mail address [foo@someplace.com]
```

After all the questions have been answered, **install_release** has the information needed to perform the installations you have requested, as stated in the on-screen information.

```
The interactive portion of the installation is complete.
If you choose to continue, the previously listed components
will be installed/updated.


Upon completion, the installation status will indicate whether
there were problems, and provide reminders of post-installation
steps.


This WILL NOT include stopping all currently running ClearQuest
Product Family software.
This WILL NOT require a reboot of the system.



**** Enter 'quit' or 'no' to abort the installation ****
**** Enter 'yes' or press <RETURN> to continue ****

Continue installation?(yes, no, quit)[yes]:
```

At this point, you must decide whether to go ahead with the installation. Until now, there has been no modification of the system (other than creating the log file). No files have been moved, and no processes have been affected.

The installation then prompts you for the directory name of the ClearQuest database registry directory.

Note: If you are reinstalling after a deinstall, the directory (CQDB_rgy) holding the ClearQuest database registry directory (or directories) is automatically moved from /var/tmp/Rational.preserve back to /opt/rational/clearquest.

```
ClearQuest Client/Server - Database Registry Menu

NOTE: The directory CQDB_rgys has been moved from
/var/tmp/Rational.preserve back to /opt/rational/clearquest.

Please enter the ClearQuest database registry directory to use/reuse.

NOTE: For your ClearQuest database registry directory, you may
specify an absolute path to a location outside the install area,
or you may specify an absolute path to (or a relative path under) the
designated default location /opt/rational/clearquest/CQDB_rgys.

The designated default location is the only allowable location
within the install region for establishing ClearQuest database
registry directories.

ClearQuest database registry directories created under the
designated default location will be preserved upon deinstall,
and reinstated upon reinstall.

For ClearQuest database registry directories specified in either
the designated default location or outside the install area,
the following is true:
If the specified ClearQuest database registry directory does not
currently exist, the installer program will attempt to create it
along with any other nonexisting directories specified in the path.
Full read, write, and execute permissions on the ClearQuest
database registry will then be established by the installer program.
If the specified ClearQuest database registry directory already
exists, the installer program will require that it have full read
and execute permissions for the installation to complete successfully.

Invoking ClearQuest requires access to the ClearQuest database
registry directory.

Therefore, if you plan to invoke ClearQuest from any other machines,
you must provide a network accessible path.
```

Note: For example, if you are installing on a machine named **xxx** and you plan on invoking ClearQuest on client machines named **yyy** and **zzz**, during installation you are prompted for the ClearQuest Database registry directory. You may decide to take the default location /opt/rational/clearquest/CQDB_rgys/cqdb_registry. Although this

location is on machine **xxx**, machines **yyy** and **zzz** will also need to access this location. Therefore, you must provide a network accessible path for this location. You would enter (assuming /net is your NFS mount directory): /net/xxx/opt/rational/clearquest/CQDB_rgys/cqdb_registry. When ClearQuest is invoked on machines **yyy** and **zzz**, they will be able to access the registry location on machine **xxx**.

If the directory you specify does not exist, the installation prompts you to create it:

```
/opt/rational/clearquest/CQDB_rgys/cqdb_registry not found
Create it? (yes, no, quit, help) [yes]
```

The installation then displays the following message:

```
Before running ClearQuest, you must source using one of the provided
cq_setup scripts.  If you are installing this for users in addition to
yourself you must have them add one of these commands to their login
environment.

    Users of csh, tcsh and other csh-compatible shells do this:

    source /opt/rational/clearquest/cq_setup.csh

    Users of sh, ksh, bash and other bourne-compatible shells do this:

    . /opt/rational/clearquest/cq_setup.sh
```

After the installation is finished, read all messages displayed carefully. In particular, look for errors that may have occurred during installation. If there is a problem, look in the installation transcript log (/var/adm/rational/clearquest/Rational_install.*time-stamp*) for information about how to correct the errors. If you are unsure how to proceed, call Rational Customer Support.

Note: If the installation was aborted, the installation log may be in /tmp.

MultiSite Shipping Configuration Files

If you are upgrading from a previous release of Rational ClearQuest MultiSite and **install_release** detects the existence of a previously installed shipping.conf, it generates a message to the user that a merge may be required.

The template file is *ccase-home-dir*/config/services/shipping.conf.template and the current configuration file is /var/adm/rational/clearcase/config/shipping.conf.

Postinstallation and Administration

6

This chapter describes postinstallation configuration procedures and provides some information about administering Rational ClearQuest.

To complete the installation, you must configure the ClearQuest databases using the administration host and then connect to the database using a native client.

Create Database Aliases for Oracle or DB2

You must create database aliases to access an Oracle or a DB2 database. To do so, you must use the DB2 client software to create a database alias on the ClearQuest administrator host. For DB2, you must create the database alias on all native client hosts also.

For Oracle, you must use Oracle client software to create a database alias on the ClearQuest administrator host.

When creating the database alias for either Oracle or DB2, the database alias name must be identical on all hosts that use it. For example, if the DB2 database alias **cqdb** is created on the ClearQuest administrator host, all native client hosts must create the DB2 database alias **cqdb.**

Creating a DB2 Database Alias

To configure access to a DB2 database server host for the ClearQuest administrator host, you must use the DB2 Client Configuration Assistant to create an alias for each physical ClearQuest database.

1. For DB2 7.*x*, click **Start > IBM DB2 > Client Configuration Assistant**. For DB2 8.1, click **Start > IBM DB2 > Set-up Tools > Configuration Assistant**.
2. For DB2 7.*x*, in the Welcome dialog box, click **Add database**. For DB2 8.1, in the DB2 Message dialog box, click **Yes**. Then, click **Search the network** and click **Next**.
3. Expand the **Known Systems** folder. If you see the database server host on which the ClearQuest database resides, expand it and select the database name for which you want to create an alias. Click **Next**.

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Note: If you do not see the database server host you need, expand the **Other Systems** folder. If you still do not see the host, talk to your ClearQuest database administrator. There may be a network problem.

4 Type an alias name in the **Database alias** box. Type an optional comment in the **Comment** box and click **Next**.

5 Clear the **Register this database for ODBC** option, if it is selected. Click **Finish**.

6 A confirmation dialog box opens. To test access to the database, click **Test Connection** and type the user name in the **User ID** box and password in the **Password** box.

If the connection fails, attempt to connect by using the following command:

```
db2
db2> catalog TCPIP node node-name remote host-name server port-number
db2> catalog database database-alias at node node-name
db2> terminate
```

Note: When the administrator configures the connection to the DB2 database server, the **database alias** is entered in the **Database Alias** box on the Maintenance Tool. For more information about using the Maintenance Tool, see *Creating a Schema Repository* on page 67 and *Creating a User Database* on page 69.

Creating an Oracle Database Alias

To configure a ClearQuest administrator's host for access to an Oracle database, you must use the Net8 Assistant program to create an alias for each physical ClearQuest database.

1 Click **Start > Oracle - OraHome81 > Network Administration > Net8 Assistant**.

2 In the navigation pane, expand **Net8 Configuration**, click **Local**, and then select **Service Naming**.

3 Click **Edit > Create** and complete the New Name Service Wizard:

a Type the name of the alias in the **Net Service Name** box. Click **Next**.

b Click **TCP/IP** to select the network protocol to use to communicate with the database. Click **Next**.

c Type the name of database server host in the **Host Name** box and type the port number in the **Port Number** box.

d Type the service name in the **Service Name** box and select the **Oracle8i Connection Type**. Click **Next** and then click **Test**. If the test of the connection succeeds, click **Finish**.

Note: When the administrator configures the connection to the Oracle database server, the **Net Service Name** is entered in the **SQL*Net Alias** box on the Maintenance Tool. For more information about using the Maintenance Tool, see *Creating a Schema Repository* on page 67 and *Creating a User Database* on page 69.

Creating the ClearQuest Databases

After you install ClearQuest and create the necessary empty vendor databases, you must create the schema repository and the user databases. Initially, you can create a sample user database to learn more about the product. You can create your user databases later. For more information about configuring an evaluation database, see the *Installation Guide* for Rational Server Products.

Creating a Schema Repository

To create a new schema repository:

1. Click **Start > Programs > Rational Software > Rational ClearQuest > ClearQuest Maintenance Tool**.
2. Click **Schema Repository > Create**.
3. In the **Existing Connections** area, type a name for the schema repository connection, and press ENTER.
4. In the **Schema Repository Properties** area, select a vendor database from the **Vendor** list and type the full path for the database in the **Physical Database Name** box. Click **Next**.

   Then enter the information required for your vendor database.

   For SQL_SERVER

   a Type the database name for SQL Server schema repository in the **Physical Database Name** box.

   b Type the name of the database server in the **Database Server Name** box.

   Note: Each native client must be able to access this server host by using the name exactly as it appears in this entry.

   c Type the database owner (DBO or Administrator) user name in the **Administrator Name** box.

d Type the password for the database owner (DBO or Administrator) in the **Administrator Password** box.

e Type the general purpose or read/write user name in the **Read/Write User Name** box.

f Type the password for the general purpose or read/write username in the **Read/Write User Password** box.

g Type the schema repository or read-only user name in the **Read-Only User Name** box.

h Type the password for the schema repository or read-only user name in the **Read-Only User Password** box.

For ORACLE

a Type the TNS name (SQL*Net Alias pointing to the Oracle instance) in the **SQL*Net Alias** box.

b Type the user name you created for the schema respository in the **User Name** box.

c Type the password for the user name in the **Password** box.

d Specify the following options in the **Connect Options** box, separated by semicolons. For example:

`Host=`*`name`*`; SID=`*`name`*`; Server_ver=8.1; Client_ver=8.1; Lob_type=LONG` or `CLOB`

Option	Definition
Host	The name of the database server host. If your ClearQuest environment includes UNIX and Windows clients, this name is mandatory.
SID	The name of the database instance. If your ClearQuest environment includes UNIX and Windows clients, this name is mandatory. On UNIX, the SID is case-sensitive.
SERVER_VER	The version of the Oracle server you are using. (For Oracle 8i, use 8.1.)
CLIENT_VER	The version of the Oracle client software you are using. (For Oracle 8i, use 8.1.) If ClearQuest users want to use a different Oracle client version than what is entered here, they must override the set options manually. The default setting is 8.1.

Option	Definition
LOB_TYPE	The type of data you are using. The valid data type is **LONG** or **CLOB**.

Note: All ClearQuest UNIX client users must use the same Alias or Net Service Name (**TNSname**), Database Instance (**system ID** or **SID**), **TCP/IP** protocol, and Host Name (Oracle server host).

For DB2

a Type the database alias name (alias pointing to the DB2 database) in the **Database Alias** box.

b Type the user name created for the schema repository in the **User Name** box.

c Type the password for the user name in the **Password** box.

5 Click **Next**.

6 In the schema definition area:

a (Optional) Select the **Create sample database** option.

b In the **Schema to use** list, select the schema to use. For information about the schema options, see the *Administrator's Guide* for Rational ClearQuest.

c In the **Database Name** box, type the database name for the schema repository.

d In the **Description** box, type a description.

7 (Optional) If the **Create sample database** option was selected, in the **Sample User Database** area, enter the properties of the database designated for the sample database.

8 Click **Finish**. In the **Status** dialog box, verify the successful creation of the schema repository.

Creating a User Database

After you create a schema repository, you can create ClearQuest user databases.

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

2 In the Schema Repository dialog box, select the schema repository to use for creating a user database.

3 In the ClearQuest Designer Login dialog box, log on with the default ClearQuest administrator login name and password. The default user name is **admin**; the

password is Null and should be left blank. You can change this password and create a new login at your earliest convenience. Click **OK.**

4 When the Open Schema dialog box opens, click **Cancel**.

5 Click **Database > New Database**.

6 Type a logical database name in the **Logical Database Name** box for the user database you want to create. This name can be up to five characters. Click **Next**.

7 Select the vendor database you plan to use and type the properties appropriate for that vendor. (For more information, see *Creating a Schema Repository* on page 67.) Then, click **Production Database** or **Test Database**. Click **Next**.

8 Click **Next** to accept the default **Timeout** and **Poll Interval** polling parameters.

9 Select a schema with which to associate your user database.

10 Click **Finish**.

Setting Up the ASCII Code Page

To ensure data integrity for UNIX clients that write data to the ClearQuest database, you must set the code page to **ASCII** in three places:

1 On the administrator host, run **installutil** to set the schema repository code page to **ASCII**. For more information, see the *Administrator's Guide* for Rational ClearQuest.

2 Run the database management tool for your ClearQuest database and set the database code page to **ASCII**. For more information, see the *Administrator's Guide* for Rational ClearQuest.

3 If you are using an Oracle or SQL Server database for ClearQuest, when installing OpenLink Broker software on the Oracle server host or the SQL Server host, you must set up the OpenLink Broker for an **ASCII** code page. For more information, see *Installing OpenLink Request Broker with Oracle* on page 75 and *Installing OpenLink Request Broker with SQL Server* on page 73.

Configuring the ClearQuest Client

To configure native clients to log on to the ClearQuest database, perform the appropriate procedure.

To Access a DB2 Database

1. If necessary, create a database alias on each native client. See *Configuring a Database Alias to Connect Native Clients to a DB2 Database* on page 71.
2. Set up the login environment on the native clients. See *Customizing the Client Host Environment* on page 79.
3. Log in and register the ClearQuest database. See *Logging In to the Client* on page 80.

To Access a SQL Server Database

1. If necessary, install OpenLink Broker on the SQL Server server host. See *Installing OpenLink Request Broker with SQL Server* on page 73.
2. Set up the login environment on the native clients. See *Customizing the Client Host Environment* on page 79.
3. Log in and register the ClearQuest database. See *Logging In to the Client* on page 80.

To Access an Oracle ClearQuest Database

1. If necessary, install OpenLink Broker on the Oracle database server host. See *Installing OpenLink Request Broker with Oracle* on page 75.
2. If necessary, configure ODBC catalog view for the Oracle database. See *Installing the OpenLink ODBC Catalog Views for Oracle 8* on page 76.
3. Create a startup script for an Oracle database on Solaris and HP-UX. See *Automating Startup on Reboot for an Oracle Database Server on Solaris* on page 77 and *Automating Startup on Reboot for an Oracle Database Server on HP-UX* on page 77.
4. Set up the login environment on the native clients. See *Customizing the Client Host Environment* on page 79.
5. Log in and register the ClearQuest database. See *Logging In to the Client* on page 80.

Configuring a Database Alias to Connect Native Clients to a DB2 Database

For a native client to access a DB2 database, the DB2 client software must be installed on each native client host. For installation information, see the IBM DB2 product documentation.

After the DB2 client software is installed on the native client host, perform the following steps:

1. Log on to the native client host as a user with privileges to modify the database instance (perhaps the UNIX user who created the DB2 instance).
2. Use the **source** command to set up the DB2 environment:

   - For **csh**, **tcsh**, and other **csh**-compatible shells:

   source ~*DB2-instance-user***/sqllib/db2/cshrc**

   - For **sh**, **ksh**, **bash** and other Bourne-compatible shells:

   . ~*DB2-instance-user***/sqllib/db2profile**

   The DB2 ODBC driver requires that this environment be set for all operations; ClearQuest does not operate properly with DB2 if this environment is not set. A typical symptom that the environment is not set is that the DB2 ODBC driver will be unable to log on to the DB2 database.
3. Run the DB2 command line administration tool, **db2**.
4. Create a DB2 TCP/IP **Node** for use by the native client. The node alias must be the same for all DB2 clients. The port number is the TCP/IP port used by the DB2 service.

   `db2>` **CATALOG TCPIP NODE** *node-alias* **REMOTE** *server-host-name* **SERVER** *port-number*
5. Create a DB2 database alias for each physical database. The database alias must be the same for all DB2 clients.

   `db2>` **CATALOG DATABASE** *database-name* **AS** *database-alias* **AT NODE** *node-alias*
6. Test the connection to the DB2 database. The **CONNECT** command should succeed.

   `db2>` **CONNECT TO** *database-alias* **USER** *database-user-id* **USING** *password*

   `db2>` **DISCONNECT CURRENT**

   `db2>` **QUIT**
7. Create a symbolic link from the ClearQuest install area to the installation area for the DB2 ODBC device driver. This link is required because ClearQuest does not distribute the DB2 device driver. A typical symptom that this step was omitted is that ClearQuest indicates that the specified driver could not be loaded while attempting to log on to the DB2 database. (This step must be completed for every native client install area that will access DB2.)

   cd *cquest-home-dir*

   cd *arch***/shlib**

   ln -fs *IBM DB2 Install Dir/DB2 version***/lib/libdb2.so db_IBMDB2**

For AIX only:

ln -fs *IBM DB2 Install Dir/DB2 version*/**lib/db2.o db_IBMDB2**

Note: When using a DB2 8.1 client on AIX, you will need to create an object file for the ODBC driver manager load (if it does not exist) prior to connecting to DB2. To create db2.o on AIX, extract the shared library from the ODBC driver for DB2:

cd *IBM DB2 Install Dir/DB2 version*/**lib**

ar -x libdb2.a

Then, create the db2.o file:

mv shr.o db2.o

8 Repeat Step 5 and Step 6 for each physical database.

9 Register the ClearQuest database at a native client login (see *Logging In to the Client* on page 80.) The following information is required to successfully connect:

- Vendor: DB2
- Server: *server host name*
- Database: *database alias for schema repository*
- User Name: *database-user-id*
- Password: *password*

Installing OpenLink Request Broker with SQL Server

To run SQL Server databases on a Windows host, you must install the OpenLink Request Broker on the SQL Server host. The OpenLink Request Broker software is provided on the ClearQuest Installation CD.

1 Create an *openlink-home* directory on the SQL Server host for the OpenLink Broker installation.

2 From the networkwide ClearQuest release area, copy *release-area*/clearquest/openlink-server/windows to the *openlink-home* directory on the SQL Server host.

3 From the *openlink-home* directory on the SQL Server host, run **opl.exe**. This is a self-extracting .zip file whose default directory location is C:\Program Files\OpenLink. Click **Browse** to change this location.

4 Execute this command:

cqperl oplrqb.pl

5 When prompted for the directory to which you extracted the data, type the directory path and press ENTER. The request broker will be installed, and the **oplrqb** service will be registered. No other server configuration is necessary.

6 Connect to the SQL Server host from the native client as you would the Windows client. When registering the ClearQuest database (see *Logging In to the Client* on page 80) at the native client logon, the following information is required to successfully connect:

- Vendor: SQLSERVER
- Server: *server hostname*
- Database: *database name for schema repository*
- User Name: *SQL Server user name created for schema repository*
- Password: *SQL Server password created for schema repository*

Note: The SQL Server host name that you enter must be accessible from all native client hosts. When in doubt, use the **ping** command to verify connectivity.

Using OpenLink Broker for ASCII Mode

For SQL Server, you do not have to explicitly configure OpenLink Broker to use the ASCII code page. However, during the SQL Server installation, the administrator must configure a default collation.

For SQL Server 7, during the installation, configure the default collation in the Character Set/Sort Order/Unicode Collation dialog box:

1 Click the **Character Set** box and select **1252/ISO Character set (Default)**.

2 Click the **Sort** order box and select **Binary order.**

3 Click the **Locale Identifier** box and select **Binary order.**

4 Specify case-sensitivity; select the **Case-insensitive** check box to select either case-sensitive or case-insensitive.

For SQL Server 2000, during the installation, configure the default collation in the Collation Setting dialog box:

1 In the **Collation designator** list, select **Latin1_General**.

2 Under **Sort order**, click the **Binary option.**

When these values are specified as the default collation for SQL Server, OpenLink Broker handles all data as ASCII.

Installing OpenLink Request Broker with Oracle

After setting up an Oracle database server, (see Chapter 2), you must also install OpenLink Request Broker on the Oracle database server to facilitate database connections.

Note: The OpenLink Request Broker software can be installed on the UNIX file server if that file server is NFS mountable by the database server. But, it must execute locally on the database server.

1. Create an *openlink-home* directory on the Oracle server for the OpenLink Broker installation.
2. From a ClearQuest release area, copy *release-area*/clearquest/openlink-server/*arch*/ to the *openlink-home* directory on the Oracle server.

   where

   arch — Hardware system. Use one of the following values:
   - **hp1100**
   - **sun5**
   - **aix4_power**
   - **rhat_x86**

3. Log on to the Oracle server as the user ID that you will use to install ClearQuest.
4. Change to the directory where OpenLink Broker is installed**.**

   cd *openlink-home*

5. Run the installation script:

   sh install.sh

   When prompted for the installation information, accept any default values that are provided.

6. After the installation script is complete, run **post_install.sh** to configure your Oracle settings:

   sh post_install.sh

7. The **post_install** shell prompts you to enter the values for your Oracle root directory (**ORACLE_HOME**) and your Oracle system ID (**ORACLE_SID**).

   Note: You may rerun this script to reset the options at any time.

8. The configuration process is complete. Type **Quit** to quit the OpenLink Configuration Utility.

Setting Up OpenLink Broker for ASCII Mode

1 On the Oracle server host, open *openlink-home*/openlink_server/*arch*/bin/oplrqb.ini in a text editor and locate the **[Environment ORACLE81]** section.

2 Add the following lines to the end of that section:

```
NLS_LANG=AMERICAN_AMERICA.US7ASCII

NLS_NUMERIC_CHARACTERS=.,

NLS_SORT=binary

NLS_DATE_FORMAT=DD-MON-YY
```

3 Save the file and exit the text editor.

Updating the OpenLink Broker Driver for an Oracle Database Server on Solaris

When using Oracle 8.1.6 or 8.1.7 with Solaris, you must update the OpenLink Broker driver after installing OpenLink Broker. To update OpenLink Broker:

1 From the *openlink-home*/bin directory on the Oracle server, create a backup copy of ora81_mv.

2 From a ClearQuest networkwide release area, copy *release-area*/clearquest/openlink-server/sun5/ora81_mv.42_sol28_Oracle8.1.7 to the *openlink-home*/bin directory on the Oracle server as ora81_mv.

Installing the OpenLink ODBC Catalog Views for Oracle 8

On the Oracle server host, run **svrmgrl** with the corresponding **SQL** script, and use **odbccat8.sql** for Oracle 8. The script is located in the newly created bin directory.

1 Log on as the Oracle database administrator.

2 Change to the directory that contains the **odbccat8.sql** script:

cd *openlink-home***/openlink_server**/*arch*/**scripts/Oracle**

where

arch Hardware system. Use one of the following values:

- **hp1100**
- **sun5**
- **aix4_power**
- **rhat_x86**

3 Enter the following commands. Note that the command **svrmgrl lmode** uses the letter **l**, not the number **1**.

```
> svrmgrl lmode=y
SVRMGR> @odbccat8.sql
SVRMGR> EXIT
```

For more information, see the comments in the odbccat8.sql file.

Automating Startup on Reboot for an Oracle Database Server on Solaris

The following instructions assume that your UNIX installation uses the typical directories for startup and shutdown scripts. To restart the OpenLink Request Broker after rebooting the Oracle database server:

1 Log on as **root**.

cd *openlink-home*/**openlink_server/sun5**

2 Copy the script rc.OpenLinkBroker script to the /etc/init.d directory.

cp rc.OpenLinkBroker /etc/init.d/openlinkbroker

3 Edit the script to change the value of BIN_DIR to

openlink-home/**openlink_server**/**sun5/bin**

4 Make the script executable:

chmod +x /etc/init.d/openlinkbroker

5 Create symbolic links for startup and shutdown. Note that the example uses **98** for startup and **02** for shutdown. You may need to use different numbers so that the startup script is invoked after any Oracle and NFS startup scripts.

>**ln -s /etc/init.d/openlinkbroker /etc/rc2.d/S98openlinkbroker**

>**ln -s /etc/init.d/openlinkbroker /etc/rc2.d/K02openlinkbroker**

Automating Startup on Reboot for an Oracle Database Server on HP-UX

The following instructions assume that your UNIX installation uses the typical directories for startup and shutdown scripts. To restart the OpenLink Request Broker after rebooting the Oracle database server:

1 Log on as **root**.

cd *openlink-home*/**openlink_server/hp1100**

2 Copy the script rc.OpenLinkBroker script to the /sbin/init.d/ directory.

cp rc.OpenLinkBroker /sbin/init.d/openlinkbroker

3 Edit the /sbin/init.d/openlinkbroker script to change the value of BIN_DIR to be:

openlink-home/**openlink_server/hp1100/bin**

4 Make the script executable.

chmod +x /sbin/init.d/openlinkbroker

5 Create symbolic links for startup and shutdown. Note that the example uses **98** for startup and **02** for shutdown. You may need to use different numbers so that the startup script is invoked after any Oracle and NFS start up scripts.

>**ln -s /sbin/init.d/openlinkbroker /sbin/rc2.d/S98openlinkbroker**

>**ln -s /sbin/init.d/openlinkbroker /sbin/rc2.d/K02openlinkbroker**

Automating Startup on Reboot for an Oracle Database Server on AIX

The following instructions assume that your UNIX installation uses the typical directories for startup and shutdown scripts. To restart the OpenLink Request Broker after rebooting the Oracle database server:

1 Log on as **root**.

cd *openlink-home*/**openlink_server/aix4_power**

2 Copy the script rc.OpenLinkBroker script to the /etc directory.

cp rc.OpenLinkBroker /etc/openlinkbroker

3 Edit the script to change the value of BIN_DIR to

openlink-home/**openlink_server**/**aix4_power/bin**

4 Make the script executable:

chmod +x /etc/openlinkbroker

5 Edit **/etc/inittab** and add the line:

openlinkbroker : 2 : wait : /etc/openlinkbroker

>**ln -s openlink-home/rc.openlinkbroker rc.openlinkbroker**

Automating Startup on Reboot for an Oracle Database Server on Red Hat Linux

The following instructions assume that your UNIX installation uses the typical directories for startup and shutdown scripts. To restart the OpenLink Request Broker after rebooting the Oracle database server:

1 Log on as **root**.

cd *openlink-home*/**openlink_server/rhat_86**

2 Copy the script rc.OpenLinkBroker script to the /etc/init.d directory.

cp rc.OpenLinkBroker /etc/init.d/openlinkbroker

3 Edit the script to change the value of BIN_DIR to

openlink-home/**openlink_server**/**rhat_x86/bin**

4 Make the script executable:

chmod +x /etc/init.d/openlinkbroker

5 Create symbolic links for startup and shutdown. Note that the example uses **98** for startup and **02** for shutdown. You may need to use different numbers so that the startup script is invoked after any Oracle and NFS startup scripts.

>**ln -s /etc/init.d/openlinkbroker /etc/rc2.d/S98openlinkbroker**

>**ln -s /etc/init.d/openlinkbroker /etc/rc2.d/K02openlinkbroker**

Customizing the Client Host Environment

If this is a first-time installation on your client host, you may want to customize to your environment to make it easier to use ClearQuest.

Modifying Your Search Paths

Access to ClearQuest programs and online documentation depends on certain environment variable settings. The most reliable way to establish these settings is to edit your shell startup script.

Shell program	Startup script in root directory
C shell	**.cshrc**
Bourne shell	**.profile**
Korn shell	**.profile**

Note: We recommend that C shell users avoid placing ClearQuest settings in the file **.login**, which is executed only by login shells.

Sourcing the Setup File

To start ClearQuest, each native client must source a configuration file to modify pathnames and setup the CQ_HELP_BROWSER environment variable for displaying ClearQuest Help.

Use the **source** command to set up the ClearQuest environment:

- For **csh**, **tcsh**, and other **csh**-compatible shells:

  source *cquest-home-dir***/cq_setup.csh**

- For **sh**, **ksh**, **bash** and other Bourne-compatible shells:

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

  Note: If you are accessing a DB2 database, you must set the DBINSTANCE. To set the DBINSTANCE:

  setenv DB2INSTANCE *DB2-client-DB2INSTANCE-name*

Setting the TZ Environment Variable on Red Hat Linux

The TZ environment variable is used by the ClearQuest native client to format the display of date and time information. On Red Hat Linux, you must ensure that the value is set to your current timezone.

For **csh**, **tcsh**, and other **csh**-compatible shells:

`setenv TZ` *timezone*

For **sh**, **ksh**, **bash** and other Bourne-compatible shells:

`set TZ=`*timezone*`;export TZ`

Note: On Red Hat Linux, *timezone* values can be found in /usr/share/zoneinfo.

The ClearQuest startup script checks for the existence of TZ each time it is run. To make the this setting permanent, update your .cshrc (or .profile) login files by adding the appropriate command as listed previously.

Logging In to the Client

After sourcing the setup file, start the native client:

1. Change to this directory:

   cd *cquest-home-dir*/`arch`**/bin**

2. Type **./clearquest &**.

3. If the ClearQuest database registry directory entered at the end of the client installation contains existing database connection records, proceed to Step 5.

If the ClearQuest database registry directory entered at the end of the client installation does not contain existing database connection records, the Register Database dialog box opens.

In the Register Database dialog box, complete the required information that your ClearQuest administrator has given you to connect to the schema repository.

Parameter	SQL Server	Oracle	DB2
Vendor	SQLSERVER	ORACLE	DB2
Server	Host name	Host name	Node name entered when cataloging the node (See ***Configuring a Database Alias to Connect Native Clients to a DB2 Database*** on page 71.)
Database	Schema repository database name	Not required	Database alias catalogued for the DB2 database
SID	Not required	Instance ID for the Oracle database server. This is case-sensitive.	Not required
User Name	Database login user name	Database login user name	Database login user name
Password	Database login password	Database login password	Database login password
Connect Options	Not required	**HOST**=*hostname* **SID**= *sid* **SERVER_VER**=**8.1** **CLIENT_VER**=**8.1** **LOB_TYPE**=**LONG** or **CLOB**	Not required
Databases Dir	*ClearQuest database registry directory*	*ClearQuest database registry directory*	*ClearQuest database registry directory*

4 After the database information is complete, click **Apply**. Status information appears in the **Output** box. If the connection to the database is successful, click **Close**. Otherwise, correct the values and click **Apply**.

5 In the Rational ClearQuest Login dialog box, type your ClearQuest user name and password in the **User Name** and **Password** boxes. Select an available ClearQuest database from the **Database** box.

The native client opens the database.

Recommended Postinstallation for the Native Client

After you install ClearQuest, perform the following recommended tasks.

Configuring the Native Client to Send E-Mail Notification

If a default e-mail address was specified when you created the release area, the native client has e-mail notification for a default e-mail address.

A native client user can also enable e-mail notification after installation. This may be necessary if a default address was not defined or to change the default e-mail address. To do so:

1 Type **clearquest** at a UNIX shell prompt.

2 Click **View > E-mail Options**.

3 In the E-mail Setup dialog box, select the **Enable E-mail Notification** option.

4 In the **Your E-Mail Address** box, type the e-mail address from which you will send notification when you modify a ClearQuest record. For example, this can be your e-mail address or that of a group to which you belong. The e-mail address must be a valid RFC-822 address. For additional information, ask your ClearQuest or network administrator.

5 Click **OK** to save your changes.

Configuring the Native Client to Receive E-Mail Notification

To configure your native client to receive e-mail notification, edit your user profile as follows:

1 Click **View > Change User Profile**. The User Profile dialog box opens.

2 Type your e-mail address in the **E-Mail** box.

3 Click **OK** to save your changes.

Subscribing to the ClearQuest User Group

After installing ClearQuest, you may join the ClearQuest User Group. The ClearQuest User Group is an e-mail forum where you can share your experiences, pose questions, or obtain useful information from other ClearQuest users. To subscribe to the group, visit the Rational Developer Network Web site at http://www.rational.net/. Your e-mail address will not be given out to anyone.

Recommended Postinstallation Tasks for the Network Install

After a native client is installed (using **install_release**) on a network host, other UNIX hosts, with compatible architectures, can run ClearQuest remotely on that network host. To run ClearQuest remotely, you must perform the following:

- Export the installation directory on the network host
- Log in to the network resource, source the setup file from the remote UNIX host, and run ClearQuest

Exporting the Installation Directory on the Network Host

Before sourcing the setup file from a remote UNIX host, you must **export** /opt on the network host where **install_release** was executed. Make sure that the exported directory /opt on the network host is accessible to all remote UNIX hosts that will run ClearQuest.

Logging In to the Network Resource to Run ClearQuest

To start the native client on the remote UNIX host:

1. **login** to the remote UNIX host.
2. Use the **source** command to set up the ClearQuest environment:
   - For **csh**, **tcsh**, and other **csh**-compatible shells do this:

     source /net/*network-hostname-where-cq-is-installed***/***cquest-home-dir***/cq_setup.csh**
   - For **sh**, **ksh**, **bash** and other Bourne-compatible shells do this:

     . /net/*network-hostname-where-cq-is-installed***/***cquest-home-dir***/cq_setup.sh**
3. **setenv DISPLAY** *remote-UNIX-hostname***:0.0**
4. Type **./clearquest &**.

5 In the Rational ClearQuest Login dialog box, type your ClearQuest user name and password in the **User Name** and **Password** boxes. Select an available ClearQuest database from the **Database** list.

The native client running on the remote UNIX host displays and opens the database.

Note: When accessing ClearQuest from a remote UNIX host, to add database connections for a DB2 database by using the **Add Dbset** option in the Rational ClearQuest Login dialog box, you must set the DBINSTANCE environment variable on the remote UNIX host. DBINSTANCE must be set to the same value it has on the host on which the native client and a DB2 client are installed. To set DBINSTANCE:

setenv DB2INSTANCE *DB2-client-DB2INSTANCE-name*

Recommended Postinstallation for the Web Client

Follow the instructions in the *Installation Guide* for Rational Server Products to configure ClearQuest Web on an IIS Web server. When you provide the Web client users with a URL, the Web client must be configured for

- Internet Explorer or Netscape browser support
- E-mail notification

Configuring Internet Explorer

To configure Internet Explorer:

1 Start Internet Explorer on the Web user's desktop.

2 On the browser toolbar, click **Tools > Internet Options**.

3 On the **Security** tab, click **Custom Level**.

a For **ActiveX controls and plug-ins**, click **Enable** for the following options:

- **Download signed ActiveX controls**
- **Run ActiveX controls and plug-ins** (required only for the ClearQuest Advanced Query Editor feature)
- Script ActiveX controls marked safe for scripting

b For **Microsoft VM**, enable **Java permissions** by clicking any of the following conditions:

- **Custom**

- **High Safety**
- **Medium Safety**
- **Low Safety**

4 On the **Privacy** tab, click **Advanced**.

5 Click **Override automatic cookie handling** and then click **Always allow session cookies**.

Configuring the Netscape Browser

To configure Netscape:

1 Start Netscape on the Web user's desktop.

2 On the browser toolbar, click **Edit > Preferences**.

3 For Netscape 4.*x*, expand the **Advanced** node in the left pane tree and verify that the following options as a minimum are enabled:

- **Enable Java**
- **Enable JavaScript**
- **Accept only cookies that get sent back to original server**
  Or
  Accept all cookies

For Netscape 7:

- Expand the **Advanced** node in the left pane tree and verify that the **Enable Java** option is enabled.
- Under the **Advanced** node, click **Scripts & Plugins** and verify that the **Enable JavaScript** option for Navigator is enabled.
- Expand the **Privacy & Security** node in the left pane tree and click **Cookies**. Verify that either of these options are enabled: **Enable cookies for the originating web site only** or **Enable all cookies**.

4 Then click **Advanced > Cache**.

5 Set **Document in cache is compared to document on network** to **Every time**.

6 Click **OK**.

Configuring the Mozilla Browser

To configure Mozilla:

1. Start Mozilla on the Web user's desktop.
2. On the browser toolbar, click **Edit > Preferences**.
3. For Mozilla, expand the **Advanced** node in the left pane tree to verify that the **Enable Java** option is enabled. At a minimum, the following options must also be enabled:

   - Under the **Advanced** node, click **Scripts & Plugins** and verify that the **Enable JavaScript** option for Navigator is enabled.
   - Expand the **Privacy & Security** node in the left pane tree and click **Cookies**. Verify that either of these options are enabled: **Enable cookies for the originating web site only** or **Enable all cookies**.

4. Then click **Advanced > Cache**.
5. Set **Document in cache is compared to document on network** to **Every time**.
6. Click **OK**.

Configuring the Web Client to Receive E-Mail Notification

To configure your Web client to receive e-mail notification:

1. Click **Operations > Change User Profile**. The User Profile page appears.
2. Type your e-mail address in the **E-Mail** box.
3. Click **Commit** to save your changes.

Configuring ClearQuest MultiSite

For information about configuring ClearQuest MultiSite, see the *Administrator's Guide* for Rational ClearQuest MultiSite.

Upgrading ClearQuest 7

This chapter describes how to upgrade your Rational ClearQuest schemas and databases created with a previous installation.

This chapter covers the following topics:

- Understanding the Upgrade Process
- Upgrading ClearQuest Packages
- Applying Schema Changes to User Databases
- Upgrading Feature Levels
- Some Helpful Utilities

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Understanding the Upgrade Process

In some cases, you can upgrade directly from your starting version; in other cases, you need to upgrade to an intermediate version before you can upgrade to the current version. Review the following conditions for applicability to your ClearQuest administrator host and client host.

Version installed	**Upgrade procedure**
Rational ClearQuest 2002 or 2001A	Follow the procedures in this chapter.
Rational ClearQuest 2001 or 2000	1. Upgrade to version 2001A, as described in "Upgrading ClearQuest" in the 2001A edition of *Installing Rational ClearQuest*. 2. Upgrade from version 2001A to the current version by following the procedures in this chapter.
Rational ClearQuest 2.0, 1.1, or 1.0	1. Upgrade to version 2000; contact Rational Customer Support for more information. 2. Upgrade from version 2000 to version 2001A, as described in "Upgrading ClearQuest" in the 2001A edition of *Installing Rational ClearQuest*. 3. Upgrade from version 2001A to the current version by following the procedures in this chapter.
A Rational point product, any version	Contact Rational Customer Support for more information.

ClearQuest maintains backward compatibility, which makes it possible to install the new release incrementally. For example, if you upgrade some of your client hosts, these new clients can communicate with the databases created with a previous release. But to use different versions of ClearQuest in a network environment, all of the following conditions must be true:

- You are running ClearQuest alone or integrations with Rational ClearCase only.
- If you have ClearQuest clients 2001 or earlier in your network environment, you plan to keep your database at its current feature level.
- You are not running in a Rational ClearQuest MultiSite environment.

To upgrade ClearQuest, you perform upgrade tasks on three types of host:

- Database server host
- Administrator host
- Client host

The procedures in this chapter are for non-MultiSite environment. To upgrade from a ClearQuest MultiSite environment, read about synchronizing replicas in the *Administrator's Guide* for Rational ClearQuest MultiSite.

Upgrading the Database Server Host

This release adds support for newer versions of some vendor databases and drops support for older versions. This section discusses the upgrade issues related to database support changes.

Note: After you upgrade to a new version of a vendor database, do not use vendor database tools to move your schema repository and user databases. Instead, on your administrator host, use the ClearQuest Maintenance Tool to migrate your schema repository to use the new database. Then use ClearQuest Designer to move previous user databases to the new location.

Character Set Support

ClearQuest now has a feature, data code pages, which restricts ClearQuest databases to accept data in one character set only.

In a UNIX environment, you must set your data code page value to ASCII. If the character set of your current vendor database is not equivalent to the ClearQuest data code page value, in this case ASCII, you must change this setting to ASCII before you set the ClearQuest data code page value. The following table lists the ASCII character sets for Oracle, SQL Server, and DB2 databases.

ClearQuest data code page value	Oracle	SQL Server	DB2
20127 (ASCII)	US7ASCII	SQL_Latin1_General _CP437	ASCCSID

For instructions on determining and changing the character set support for your database, see Rational Solution **167217701**. This solution is accessible from the Rational Support Web site at http://www.ibm.com/software/rational/support/.

Oracle CLOB Support

This release supports a new Oracle data type called CLOB. If you are running mixed versions of ClearQuest, continue to use LONG until your entire site has been upgraded to version 2003.06.00. At that point, we recommend that you refer to the *Release Notes* for guidelines when specifying either CLOB or LONG for new databases.

OpenLink Broker 4.0

If you are upgrading from ClearQuest version 2001A and have previously installed OpenLink Broker 3.2 on your database server, you must install OpenLink Broker 4.0, which is included with this release.

When using Oracle 8.1.6 or 8.1.7 with Solaris, you must update the OpenLink Broker driver after installing OpenLink Broker. For instructions about updating OpenLink Broker, see Chapter 6, *Postinstallation and Administration*.

Other Database Upgrade Requirements

You can always switch to a different database vendor. The following requirements assume that you will continue to use the same vendor database:

- If you are running Oracle server 8.0.5, upgrade to Oracle 8.1.6 or 8.1.7. On a Windows host, upgrade the Oracle client software to 8.1.6 or 8.1.7.

  To use interMediaText support for multiline searches, you must set up the corresponding version of interMediaText (8.1.6 or 8.1.7) during the Oracle server installation:

  a Move your existing schema repositories and user databases to use the new Oracle version. On your ClearQuest administrator host, run the ClearQuest **installutil** utility with options **convertschemarepo** and **convertuserdb**. For detailed usage of these options see *Creating Database Copies* on page 102.

  b Follow the instructions in Chapter 2, *Configuring Vendor Databases*, to enable multiline search on the new Oracle databases.

  Note: If you are using Oracle 8.1.7, you must upgrade Oracle 8.1.7 to release 8.1.7.3 for Solaris or release 8.1.7.4 for HP-UX, AIX and Red Hat Linux.

- If you are running Microsoft SQL Server 6.5, 7.0, or 2000 Service Pack 0, 1, upgrade to 7.0 Service Pack 4 or 2000 Service Pack 2 or 3.
- If you are running IBM DB2 Universal Database 7.1, upgrade to DB2 7.2 Fix Pack 8 or DB2 8.1.

See the vendor documentation for general upgrade instructions.

Upgrading the Administrator Host

The ClearQuest administrator host must be a Windows host; the Administrator Tools are not available on UNIX.

1. Install ClearQuest. You must uninstall previous versions before installing the new release. For prerequisites and installation instructions, see the *Installation Guide* for Rational Server Products. If you want to connect to the schema repositories you set up in the previous release, back up the connection profiles before you install the new release.
2. Installing ClearQuest may reset the connection to the ClearQuest database. To reconnect, see *Connecting to a Schema Repository* on page 92.
3. Set the data code page value of your schema repositories. See *Setting the ClearQuest Data Code Page Value* on page 93.
4. Upgrade ClearQuest packages, test your databases, and check in the changes to the schema repository.
5. Apply schema changes to your user databases. See *Applying Schema Changes to User Databases* on page 95.

   We recommend that you perform Step 4 and Step 5 during the same logon session.
6. Optionally, upgrade ClearQuest feature levels if you want to enable new features. See *Upgrading Feature Levels* on page 96.

Upgrading the Client Host

1. Install ClearQuest. In previous releases, the **rs_install** program was used to install ClearQuest. Starting with this release, the **install_release** program handles installation on UNIX.

   Running **install_release** does not remove previous versions of ClearQuest. To deinstall previous versions on your host, you must run **rs_install**. Read Chapter 1 to see whether you have met the prerequisites. Then create a network release area (Usually a ClearQuest administrator does this), as described in Chapter 4, and install the latest release, as described in Chapter 5. If you want to connect to the schema repositories you set up in the previous release, back up the connection profiles before you deinstall the old release.

   You may install ClearQuest client on each client host. Alternatively, you can install ClearQuest client on a network host and export the installation directory so that other UNIX hosts, with compatible architectures, can run ClearQuest remotely on that network host. For more information, see the network install section in Chapter 6.

2 Installing ClearQuest may reset the connection to the ClearQuest database. To reconnect to your ClearQuest database, see *Connecting to a Schema Repository* on page 92.

Connecting to a Schema Repository

After you have installed the latest ClearQuest release, you may have to reconnect to your schema repository.

On a Windows Administrator Host

1 Start the ClearQuest Maintenance Tool.

Click **Start** > **Programs** > **Rational Software** > **Rational ClearQuest** > **Rational ClearQuest Maintenance Tool**.

2 Click **Connection** > **New**.

3 In the right panel, enter your database properties; in the left panel, give your connection a new name.

If you saved a profile that includes all the information you need before you install the latest version, you can do the following:

a Click **File** > **Import Profile**.

b Enter the path and file name in the **File Name** text field. If you have previously configured the default connection profile using Site Prep, the default location of the profile should be prepopulated in the **File Name** text field. Click **Next**.

Note: A profile file has an .ini extension, for example, dev_profile.ini.

c Check the databases you want to load into ClearQuest.

4 Click **Finish**. Your database will be connected to ClearQuest and be displayed in the left panel tree node.

On a UNIX Client Host

- To connect to the schema repositories that you set up in the previous release, move the connection profiles that you preserved to the default database directory in *cquest-home-dir*/CQDB_rgys/cqdb_registry/2003.06.00 or to a directory you designated during the installation.
- To update an existing connection or establish a new one, you can use the Add Dbset dialog box. To open the dialog box, from the ClearQuest Login dialog box, click the button with three dots and select **Add Dbset**.

Alternatively, you can run the **cqreg add_dbset** command to add a connection. For information about this command, see the *Administrator's Guide* for Rational ClearQuest.

Setting the ClearQuest Data Code Page Value

This release has a setting called the "ClearQuest data code page" that is specified for each schema repository. All user databases associated with a schema repository use the same ClearQuest data code page value. This value enforces a single code page for the database set and prevents characters not in the selected code page from entering the databases. If you have UNIX clients in your network environment, you must set your data code page value to ASCII.

Follow these general instructions to set the ClearQuest data code page. For more information about performing the specific steps, read about ClearQuest and code pages in the *Administrator's Guide* for Rational ClearQuest.

1. Databases created with previous versions of ClearQuest may contain non-ASCII data. When you set the ClearQuest data code page, the data in your databases is not converted to ASCII characters. You must follow the vendor documentation to convert the data in your databasesASCII.
2. Make sure that no ClearQuest clients are connected to the schema repository or user databases.
3. Backup the schema repository and all user databases.
4. Set the ClearQuest data code page for an existing schema repository or user database. Run the **installutil setdbcodepagetoascii** command.

If you have clients running versions of ClearQuest prior to v2003.06.00, you must also perform Step 5.

5. Apply the CharacterSetValidation package to all ClearQuest schemas, and copy the ClearQuest data code page value to all associated user databases.

Upgrading ClearQuest Packages

Each ClearQuest package implements a ClearQuest integration (for example, with Rational RequisitePro) or a feature (for example, e-mail rules).

To upgrade packages:

1. For each schema, apply package upgrades.
2. Test your changes and check in the changes to the schema repository.

3 Apply schema changes to your user databases.

This chapter explains how to upgrade packages, but it does not provide information about the features that each package implements or the dependencies among packages. For more information about ClearQuest packages, see the *Administrator's Guide* for Rational ClearQuest. For a list of packages upgraded with this release, see the the *Release Notes* for Rational ClearQuest.

Applying Package Upgrades

To upgrade ClearQuest packages:

1 Start the ClearQuest Designer:

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

   b Log on with Super User or Designer privileges.

   c If the data code page message appears, place a check mark next to this step to remind yourself later to take action. Click **OK**.

   d If the Open Schema Wizard appears, click **Cancel** to close it. (To control whether the wizard appears, clear or set the **Show this wizard at startup** check box.)

2 Create a test database against the schema that you want to upgrade. For instructions, see the section about creating a test database in the *Administrator's Guide* for Rational ClearQuest.

3 Start the Upgrade Installed Packages Wizard. Click **Package > Upgrade Installed Packages**.

4 On the **Select a schema to upgrade** page, the wizard lists the available schemas. Select the schema you want to upgrade. Click **Next**.

   The Upgrade Installed Packages Wizard checks out the schema, analyzes which packages need upgrading, and determines whether those packages have any prerequisites packages.

5 On the **Status** page, note the list of packages that need upgrading.

   Note: You may want to copy this list to a text file for later reference; some packages require additional work, as described in Step 8.

   The wizard applies packages to the schema in the correct order.

6 When the wizard finishes, read the status message to verify that the package upgrade was successful. In the open schema, inspect the changes and possibly perform additional tasks. Complete the work for this schema before upgrading other schemas.

7 Validate the changes you made; click **File > Test Work**.

8 If you are applying certain packages, perform these additional steps:

Package to apply	Procedure
RequisitePro RequisitePro Upgrade	See the *Upgrade Guide* for Rational Suite.
E-mail	After applying schema changes to the user databases (on page 95), verify that e-mail notification for each of your client users is enabled. For each type of client user (Windows, UNIX, and Web), see the appropriate section (The section titles start with "Enabling e-mail notification for...") ClearQuest reminds you to perform this task after you apply the schema change.

9 Check in the schema; on the Designer menu, click **File > Check In**.

10 To upgrade additional schemas, repeat Step 3 to Step 9.

Changing the Data Code Page Value

When you applied package upgrades, you may have seen a warning about the data code page value (see Step c on page 94). The data code page value refers to the legal character set that you can use to enter data into a ClearQuest database. In a UNIX environment, you are restricted to using ASCII characters only.

Applying Schema Changes to User Databases

This section explains how to apply schema changes to your user databases. Perform these steps now. In general, you should always apply schema changes after you make changes in the ClearQuest Designer, such as applying packages, to push changes to the user databases.

Applying schema changes takes a few minutes for each user database.

Warning: After you apply schema changes, you cannot reverse or undo the action. Always back up your databases before starting this procedure. For backup procedures, see your database vendor documentation.

To apply schema changes:

1. Log in to ClearQuest Designer with Super User or Designer privileges.
2. If the Open Schema Wizard appears, click **Cancel**.
3. Select **Database** > **Upgrade Database**.

   A message warns that this action cannot be reversed, recommends that you back up your databases before proceeding, and asks for confirmation to continue. If you have backed up your databases, click **Yes**.
4. Select the user database from the list presented in the Upgrade Database Wizard. Click **Next**.
5. Select the schema version from the list. If your most recent version is not on this list, it probably has not been checked in. If so, cancel this wizard, open the schema from the **File** menu and check it in. Then restart this process from Step 3.
6. Click **Finish**. When the user database upgrade completes, you see a message that the database has been upgraded successfully.

Upgrading Feature Levels

This section describes how to upgrade ClearQuest feature levels. These steps are optional, as follows:

- Perform the upgrade if you want to enable the latest features in ClearQuest. In Version 2003, these new features are Rational ClearQuest MultiSite (introduced in 2001A.04.20) and an improved security model (introduced in Version 2001A).
- Do not perform the upgrade if you do not want to enable these new features. Also, if you have already upgraded to the ClearQuest feature level introduced in Version 2001A, do not perform the upgrade again.

Upgrading ClearQuest feature levels can take several hours. The upgrade changes the schema repository and all its associated user databases. Typically, new tables are added to all databases, and new columns may be added to existing tables.

Before you perform the upgrade, verify that all ClearQuest users have installed the ClearQuest release that supports the new feature level.

The following table lists the feature levels supported at each ClearQuest release.

ClearQuest version	Supported feature levels
1.0	1
1.1 and 1.1 Service Packs	2

ClearQuest version	Supported feature levels
2.0	3
2000	3
2001	3
2001A	3, 5
2002	3, 5
2003	3, 5

To determine the current feature level of your databases, check the value for the feature level in the following tables:

- For a schema repository, open the **master_global** table and refer to the **feature level** field.
- For a user database, open the **db_global** table and refer to the **feature level** field.

Note: If you are upgrading Oracle databases, you can accelerate the upgrade process significantly by running the Oracle **ANALYZE** command. For instructions, see the Oracle documentation.

Overview of Feature Level Upgrade Process

As part of upgrading ClearQuest feature levels, we strongly recommend that you perform the upgrade first on a test system, and then perform it again on production databases. At a high level, the process is as follows:

1. Verify your environment.
2. Create a test bed based on production databases.
3. Upgrade the test bed and validate that the upgrade was successful.
4. Create new databases for the production system.
5. Upgrade the production databases and validate that the upgrade was successful.

Verifying Your Environment

Before you start the upgrade, be aware that it can fail under certain conditions. The following table describes these conditions and how to resolve them.

Condition	Solution
You currently have a ClearQuest schema checked out.	Check in your ClearQuest schema.
Your ClearQuest database is locked.	Unlock your database. For more information, see *Unlocking Databases* on page 101.
You have customized your schema to include Record Types or fields that have a **ratl_** prefix.	Contact Rational Customer Support. They will explain how to correct this condition.

Creating a Test Bed

A test bed is a safe, nonproduction area where you can test your changes. We recommend that you perform the upgrade on the test bed first before you upgrade your production databases. The following steps describe how to create a test bed based on your production databases:

1. Create a backup copy of your ClearQuest schema repository and user databases.
2. Create new, empty vendor databases for each schema repository and user database, as described in Chapter 2. Create the new databases in a new test directory or on a test server. In this section, these new databases are referred to as the *test bed*.

   Note: Create empty databases only. Do not use your vendor database tools to move or copy the data. ClearQuest updates the data structure and moves it into the new databases as part of the upgrade process.
3. Shut down your Web server, stop any scheduled ClearQuest MultiSite synchronization jobs, and ensure that all users have disconnected from ClearQuest by using one of these techniques:
   - Some high-end databases give the administrator a tool for logging users off the database. If your vendor database has such a tool, use it.
   - Check the Task Manager Process List of each client and server computer. If one of these processes is running, use the Task Manager to end **clearquest.exe**, **cqdesign.exe**, or any **cqintsvr*.exe** process.
4. Copy your existing production schema repository and user databases to the test bed and establish a connection to ClearQuest. Use the ClearQuest **installutil** utility with options **convertschemarepo** and **convertuserdb**. For more information about these options, see *Creating Database Copies* on page 102.

5 The convert options for **installutil** also locks the production database. To allow users to continue using the production database while you upgrade the test bed, unlock the production database. See *Unlocking Databases* on page 101.

6 For each database in the test bed, create a new empty vendor database. These will be the databases that you upgrade to. This section refers to these new databases as the *test upgrade set*.

Upgrading the Test Bed

In this section, you upgrade the test bed and verify that the upgrade was successful. To upgrade the test bed:

1 Start the ClearQuest Maintenance Tool.

2 In the **Existing Connections** area, select the connection you need to upgrade.

3 Click **Schema Repository** > **Upgrade** > **Selected Connection**.

4 At the prompt to upgrade user databases, click **Yes**.

5 Log in with Super User privileges.

6 Enter the properties of the schema repository to upgrade to (the empty database you created in the test upgrade set); then click **Next**.

7 Enter the properties for the first user database you are upgrading to (the empty databases you created in the test upgrade set). Click **Next**. Repeat until you have associated all the user databases. Click **Finish**.

ClearQuest upgrades your schema repository and user databases, and notifies you when the process is complete. It records all actions in a text file in the \Temp directory.

8 Verify that the upgrade process completed successfully:

a When the process completes, read the status message carefully to verify that it completed successfully (Scroll to the end of the message). Click **Done**.

b Test the application. Enter a few test records of each record type and move them through the entire state model to be sure the upgrade is working correctly.

Creating Production Databases

After you verify that the test upgrade is successful, you can upgrade your production databases. The procedure is nearly identical to that for upgrading the test databases.

To upgrade production databases:

1 Create empty vendor databases for each schema repository and user database, as described in Chapter 2. Create the new databases on the production server. These new databases are the *production upgrade set*.

   Note: Create empty databases only. Do not use your vendor database tools to move or copy the data. ClearQuest updates the data structure and moves it into the new databases as part of the upgrade process.

2 Notify users to log off from ClearQuest. Shut down your Web server, and stop any ClearQuest MultiSite synchronization jobs.

Upgrading the Production Databases

To upgrade from your original production databases to the production upgrade set:

1 Start the ClearQuest Maintenance Tool.

2 In the **Existing Connections** area, select the connection you need to upgrade.

3 Click **Schema Repository > Upgrade > Selected Connection.**

4 At the prompt to upgrade user databases, click **Yes** to continue.

5 Log in with Super User privileges.

6 Enter the properties of the schema repository to upgrade to (the empty database you created in the production upgrade set); then click **Next**.

7 Enter the properties for the first user database that you are upgrading to (the empty databases you created in the production upgrade set). Click **Next**. Repeat until you have associated all the user databases. Click **Finish**.

   ClearQuest upgrades your schema repository and user databases, and notifies you when the process is complete. It records all actions in a text file in the \Temp directory.

8 Verify that the upgrade process completed successfully:

   a When the process completes, read the status message carefully to verify that it completed successfully (scroll to the end of the message). Click **Done**.

   b Test the application. Enter a few test records of each record type and move them through the entire state model to be sure the upgrade is working correctly.

9 Perform additional steps after the upgrade completed successfully:

   a To prevent users from using the original production databases, either keep them locked or remove them.

   b Optionally, discard the test bed and test upgrade set.

Some Helpful Utilities

This section lists four subcommands for the **installutil** utility. All parameters are required unless stated otherwise in the Description table and must be entered in the order specified in the syntax.

Unlocking Databases

When you create database copies using **installutil**, the **convertschemarepo** subcommand locks your production database before copying it to your test bed. To allow users to continue using your original databases while you test the upgrade, unlock the database.

Note: After you complete the final upgrade, do not unlock your original databases. Keeping the original databases locked prevents users from accessing the wrong databases.

1 On the ClearQuest administrator host, open a command line window (a DOS prompt).

2 To unlock the schema repository, enter the following command for your vendor database:

installutil unlockschemarepo *db_vendor server database dbo_login dbo_password connect_options*

where:

Parameter	MS SQL	Oracle	DB2
db_vendor	SQL_SERVER	ORACLE	DB2
server	Host name	SQL*Net alias	Not required
database	Schema repository database name	Schema repository database name	Schema repository database alias
dbo_login	Database owner user name	Database owner user name	Database owner user name
dbo_password	Database owner password	Database owner password	Database owner password

Parameter	MS SQL	Oracle	DB2
connect_options	“”	HOST=*host* SID= *sid* SERVER_VER=[7.0, 8.0, 8.1] CLIENT_VER=[7.0, 8.0, 8.1]	“”

3 To unlock user databases, repeat Step 2 with the following exceptions:

- Use the **unlockuserdb** subcommand instead of **unlockschemarepo**.
- Point to the vendor database that contains the original user database, not the schema repository.

Creating Database Copies

To copy your schema repository and create a sample database for testing the upgrade process, run the **installutil** utility with the **convertschemarepo** subcommand on your administrator host. This subcommand does the following:

- Copies the original database to a new database.
- Connects ClearQuest to the database copy.
- Locks the original database.

Note: Before executing this command, back up your databases and create new databases using your database vendor tools.

To create a copy of your databases to test the upgrade process offline:

1 Create new test databases. See *Creating a Test Bed* on page 98.

2 Use **installutil convertschemarepo** to copy your existing schema repository and connect it to ClearQuest. See *installutil convertuserdb* on page 104 for sample input parameters by vendor type.

3 Use **installutil convertuserdb** to copy each of your existing user databases and connect them to ClearQuest. See *installutil convertuserdb* on page 104 for sample input parameters by vendor type.

installutil convertschemarepo

installutil convertschemarepo [**-dbset** *dbset_name*] *cq_login cq_password to_db_vendor to_server to_database to_dbo_login to_dbo_password to_rw_login to_rw_password to_ro_login to_ro_password connect_options* [*tcpip,ipx,netbios,namedpipes*] [*host1,host2,...*]

where:

Parameter	Description
dbset_name	The name of the existing connection.
cq_login	The user login name for ClearQuest databases that you want to copy. The user must have Super User privileges.
cq_password	The login password for the ClearQuest Super User.
to_db_vendor	The new upgrade vendor database name. Available choices are SQL_SERVER, ORACLE, DB2.
to_server	The new upgrade database server name.
to_database	The new upgrade database name.
to_dbo_login	The login name of the empty database owner.
to_dbo_password	The login password of the empty database owner.
to_rw_login	The read/write login name for the empty database.
to_rw_password	The read/write login password for the empty database.
to_ro_login	The read-only login name for the empty database.
to_ro_password	The read-only login password for the empty database.
connect_options	This is required only for Oracle. Required parameters: HOST=*host*;SID=*sid*; SERVER_VER=*server_version_number*; CLIENT_VER=*client_version_number*; LOB_TYPE=*data_type*
[*tcpip,ipx,netbios, namedpipes*]	These are optional parameters to specify networks.
[*host1,host2,...*]	These are optional parameters to identify multiple host machines.

installutil convertuserdb

installutil convertuserdb [**-dbset** *dbset_name*] *cq_login cq_password user_dbname to_user_db_vendor to_user_server to_user_database to_user_dbo_login to_user_dbo_password to_user_rw_login to_user_rw_password connect_options* [*tcpip,ipx,netbios,namedpipes*] [*host1,host2,...*]

where:

Parameter	Description
dbset_name	The name of the existing connection.
cq_login	The user login name to ClearQuest databases that you want to copy. The user must have Super User privileges.
cq_password	The login password for the ClearQuest Super User.
user_dbname	The name of the user database that you want to convert.
to_user_db_vendor	The new upgrade user vendor database name. Available choices are SQL_SERVER, ORACLE, DB2.
to_user_server	The new upgrade user database server name.
to_user_database	The new upgrade user database name.
to_user_dbo_login	The login name of the owner of the empty user database.
to_user_dbo_password	The login password of the owner of the empty user database.
to_user_rw_login	The read/write login name for the empty user database.
to_user_rw_password	The read/write login password for the empty user database.
connect_options	This is required only for Oracle. Required parameters: HOST=*host*;SID=*sid*; SERVER_VER=*server_version_number*; CLIENT_VER=*client_version_number*; LOB_TYPE=*data_type*
[*tcpip,ipx,netbios, namedpipes*]	These are optional parameters to specify networks.
[*host1,host2,...*]	These are optional parameters to identify multiple host machines.

Sample Data by Vendor Type

The following table provides example command-line input parameters for each database type.

Parameter	MS SQL	Oracle	DB2
db_vendor	SQL_SERVER	ORACLE	DB2
server	Host name	SQL*Net alias	Not required
database	Schema repository or user database name	Schema repository or user database name	Schema repository or user database alias
dbo_login	Database owner user name	Database owner user name	Database owner user name
dbo_password	Database owner password	Database owner password	Database owner password
rw_login	Read/write owner user name	Read/write owner user name	Database owner user name
rw_password	Read/write owner password	Read/write owner password	Database owner password
ro_login	Read-only owner user name	Read-only owner user name	Database owner user name
ro_password	Read-only owner password	Read-only owner password	Database owner password
connect_options	“”	HOST=*host* SID= *sid* SERVER_VER=8.1 CLIENT_VER=8.1 LOB_TYPE=CLOB	“”