

Rational Suite®

Installation Guide

VERSION: 2003.06.00

PART NUMBER: 800-026197-000

UNIX

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Preface

Rational Suite delivers a comprehensive set of tools that embody software engineering best practices and span the entire software development life cycle. Rational Suite has an unparalleled level of integration that improves communication both within and across teams, reducing development time and improving quality.

The *Rational Suite Installation Guide* provides you with the information that you need to install and license Rational Suite for UNIX software.

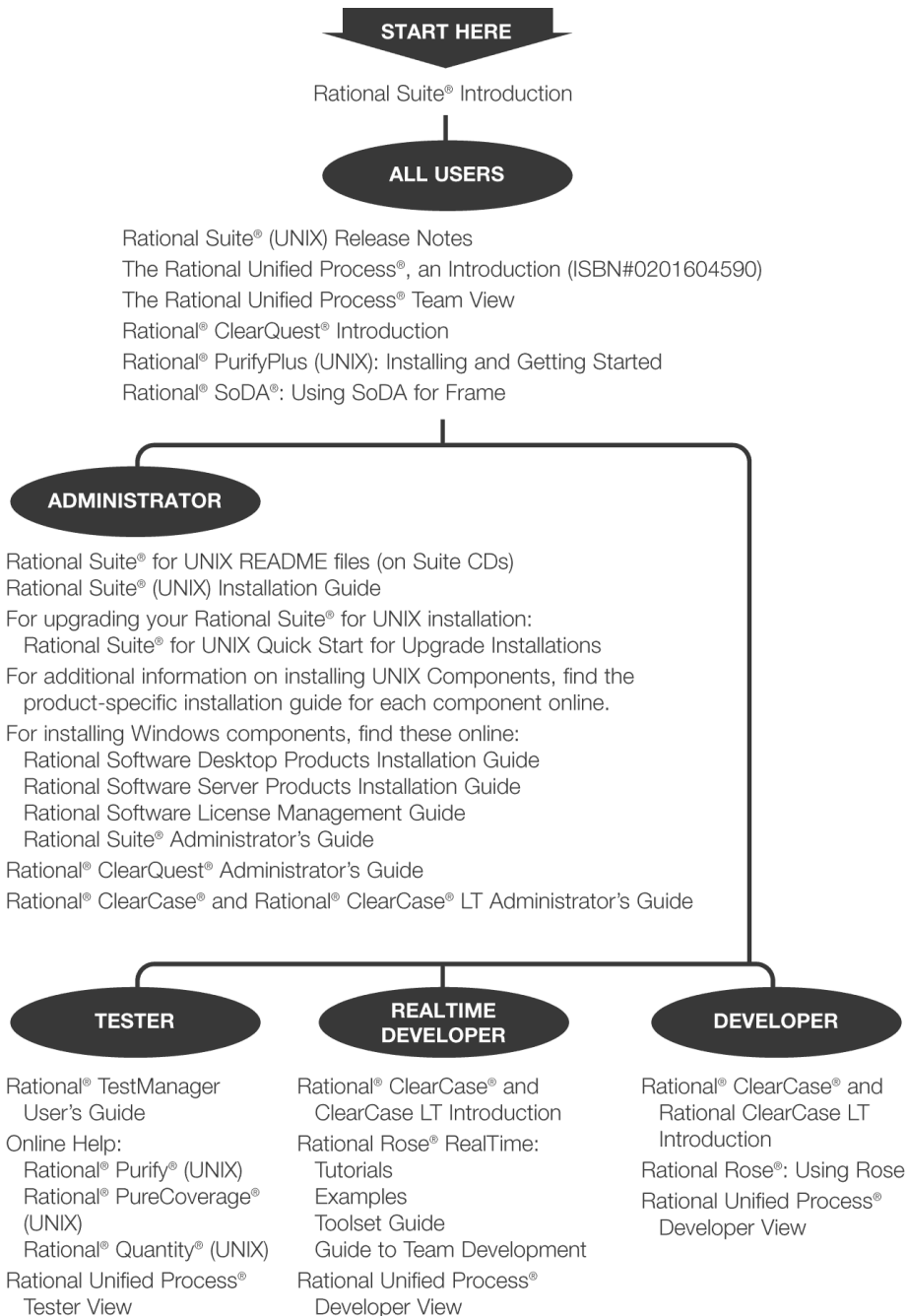
Audience

This guide is intended for developers, administrators, and quality engineers, who are responsible for installing, licensing or configuring Rational Suite for UNIX software.

Other Resources

- Additional information about installing the UNIX point-products provided in this Suite is provided in the point-product installation documentation. Information about installing the Windows point-products provided in this Suite is available in the *Rational Software Desktop Products Installation Guide* and *Rational Software Server Products Installation Guide*.
- All product manuals are available electronically, either in HTML or PDF format, on the Rational Solutions for UNIX Online Documentation CD. View them by running **rs_help** from the CD. They can also be viewed online at <http://www.rational.com/support/documentation>, or downloaded as a set from <http://www.rational.com/support/downloadcenter>.
- To provide feedback about Rational product documentation, send e-mail to techpubs@rational.com.
- For information on training opportunities, see the Rational University Web site: <http://www.rational.com/university>.
- For articles, discussion forums, and Web-based training courses on developing software with Rational products, join the Rational Developer Network at <http://www.rational.com/services/rdn>.

Rational Suite Documentation Roadmap – UNIX



Contacting Rational Customer Service

When you contact Rational Customer Service, please be prepared to supply the following information:

- Your name, company name, telephone number, and e-mail address.
- Your operating system, version number, and any service packs or patches you have applied.
- Product name and release number.
- Your service request (SR) number, if you are following up on a previously reported problem.
- The Rational Account number listed on your Rational License Key Certificate (Rational Licensing Support only).

Contacting Rational Licensing Support

If you have questions about acquiring license keys for your Rational Software products, contact Rational Customer Service — Licensing Support for your location.

Your Location	Telephone	Facsimile	E-mail
Asia Pacific	+61-2-9419-0111	+61-2-9419-0123	license@apac.rational.com
Asia Pacific (Japan)	+61-2-9419-0111	+61-2-9419-0123	license@japan.rational.com
Asia Pacific (Korea)	+82-2-556-9420	+82-2-556-9426	license@apac.rational.com
Asia Pacific (Mainland China, Hong Kong, and Taiwan)	+61-2-9419-0111	+61-2-9419-0123	license@china.rational.com
Europe, Middle East, Africa	+31 20 4546 200	+31-20-4546-202	license@europe.rational.com
North America (East Coast), South America	800-433-5444 (toll free)	781-676-2460	license@rational.com
North America (West Coast), Central America	800-433-5444 (toll free USA only) +1 (408) 863-4000	408-863-4001	license@rational.com

Contacting Rational Technical Support

If you have questions about installing, using, or maintaining this product, contact Rational Customer Service — Technical Support for your location.

Your Location	Telephone	Facsimile	E-mail
North America	(800) 433-5444 (toll free) (408) 863-4000 Cupertino, CA	(781) 676-2460 Lexington, MA	support@rational.com
Europe, Middle East, Africa	+ 31 (0) 20-4546-202 Netherlands	+31 (0) 20-4545-201 Netherlands	support@europe.rational.com
Asia Pacific	+61-2-9419-0111 Australia	+61-2-9419-0123 Australia	support@apac.rational.com

Rational Suite for UNIX is available in two editions:

- Rational Suite DevelopmentStudio for UNIX
- Rational Suite DevelopmentStudio RealTime for UNIX

Rational Suite DevelopmentStudio for UNIX is customized for software architects, designers, and developers. These practitioners use Rational Suite to design, evaluate, and implement software architecture and applications.

Rational Suite DevelopmentStudio RealTime for UNIX includes Rational Rose RealTime, which is customized for developers who focus on real-time and embedded software development. This Suite edition contains all the tools in Rational Suite DevelopmentStudio, but replaces Rational Rose with Rational Rose RealTime.

Rational Suite also comes in several Windows-based editions. Each edition of the Suite targets specific practitioners: analysts, developers, testers, project leaders, and web teams. For more information about other Rational Suite editions, see the *Rational Suite Introduction*, available on the Rational Solutions for UNIX Online Documentation CD.

Note: Unless otherwise specified, all further references to Rational Suite, Rational Suite DevelopmentStudio, or Rational Suite DevelopmentStudio RealTime, refer to the UNIX-based Suites.

Products Included in Rational Suite

The software products included with the Rational Suite run on multiple UNIX variants (as listed in the Rational Suite for UNIX Release Notes) or on Windows. For this reason, we generally refer to each product as either a UNIX Component or as a Windows Component.

Find a list of the UNIX Components and Windows Components in the sections below, followed by an alphabetical summary of all of the products included in the Rational Suite.

Summary of the Rational Suite Components

UNIX Components

Primary

The UNIX products installed from the Rational Solutions for UNIX CD are the *primary* UNIX Components. They are installed using the `rs_install` script provided on the CD. Rational license server software is installed along with the primary UNIX Components.

- Rational PureCoverage
- Rational Purify
- Rational Quantify
- Rational Rose or Rational Rose RealTime (depending on the Suite Edition)
- Rational SoDA for FrameMaker
- Rational Unified Process (RUP)

Supplementary

The UNIX products installed from other CDs in the Rational Suite DevelopmentStudio and Rational Suite DevelopmentStudio RealTime media kits are referred to in this guide as the *supplementary* UNIX Components or supplementary UNIX products because installation and configuration of these components is done separately.

- Rational ClearCase LT (UNIX)
- Rational ClearQuest(UNIX)
- Rational Test Agent (UNIX)

Windows Components

The Windows Components are installed from the Rational Solutions for Windows CD.

- Rational RequisitePro (native Windows client)
- Rational RequisiteWeb (web server; UNIX user access through URL)
- Rational ClearQuest (native Windows client)
- Rational ClearQuest Web (web server; UNIX user access through URL)
- Rational TestManager (native Windows client)
- Rational Administrator

If you install Rational TestManager, Requisite Pro, or ClearQuest, then Rational Administrator must also be installed. The Rational Administrator allows you to set up Rational products to manage large data stores. For more information, see the *Rational Software Desktop Products Installation Guide* and the *Rational Suite Administrator's Guide*.

Online Documentation Components

The Online Documentation Components are installed from the Rational Solutions for UNIX Online Documentation CD.

- Suite and product documentation files, including a root navigation page (index.html), and a hierarchy of HTML and PDF documentation files.
- Netscape Navigator. The version supported by Rational Suite is provided on the CD. If you want to use an existing installation of this HTML browser, we recommend version 4.7 or higher.
- Adobe Acrobat Reader. The version supported by Rational Suite is provided on the CD. If you want to use an existing installation of this PDF file viewer, we recommend version 4.0 or higher.

Product Summary

Table 1 summarizes the point products provided in each edition of Rational Suite.

Table 1 Summary of Products in the Rational Suite for UNIX

Product Name	Component Platform	Required License ¹	Installed from CD	Supplementary Install/Config Information
ClearCase LT (client and server)	UNIX	DevelopmentStudio (UNIX Components) <i>or</i> DevelopmentStudio RealTime (UNIX Components)	Rational ClearCase LT UNIX / Rational ClearQuest UNIX	<i>Rational ClearCase LT Installation Guide</i>
ClearQuest (native UNIX client)	UNIX client; Windows license server	DevelopmentStudio (UNIX Components) <i>or</i> DevelopmentStudio RealTime (UNIX Components)	Rational ClearCase LT UNIX / Rational ClearQuest UNIX	<i>Rational ClearQuest Product Family Installation Guide</i>

Table 1 Summary of Products in the Rational Suite for UNIX

Product Name	Component Platform	Required License ¹	Installed from CD	Supplementary Install/Config Information
ClearQuest (native Windows client)	Windows	DevelopmentStudio (Windows Components) <i>or</i> DevelopmentStudio RealTime (Windows Components)	Rational Solutions for Windows	<i>Rational Software Desktop Products Installation Guide</i>
ClearQuest Web ²	Windows Servers; UNIX web client	DevelopmentStudio (Windows Components) <i>or</i> DevelopmentStudio RealTime (Windows Components)	Rational Solutions for Windows	<i>Rational Software Server Products Installation Guide</i>
PureCoverage/ Purify/ Quantify ³	UNIX	DevelopmentStudio (UNIX Components) <i>or</i> DevelopmentStudio RealTime (UNIX Components)	Rational Solutions for UNIX	<i>Installing and Getting Started: Rational PurifyPlus, Purify, PureCoverage, Quantify</i>
Rose ⁴	UNIX	DevelopmentStudio (UNIX Components)	Rational Solutions for UNIX	<i>Rational Rose Installation Guide</i>
Rose RealTime ⁴	UNIX	DevelopmentStudio RealTime (UNIX Components)	Rational Solutions for UNIX	<i>Rational Rose RealTime Installation Guide</i>
Rational Unified Process	UNIX	DevelopmentStudio (UNIX Components) <i>or</i> DevelopmentStudio RealTime (UNIX Components)	Rational Solutions for UNIX	<i>Rational Unified Process Installation Guide</i>
RequisitePro	Windows client and server	DevelopmentStudio (Windows Components) <i>or</i> DevelopmentStudio RealTime (Windows Components)	Rational Solutions for Windows	<i>Rational Software Desktop Products Installation Guide</i>

Table 1 Summary of Products in the Rational Suite for UNIX

Product Name	Component Platform	Required License ¹	Installed from CD	Supplementary Install/Config Information
RequisitePro/ RequisiteWeb ¹	Windows server; UNIX web client	DevelopmentStudio (Windows Components) <i>or</i> DevelopmentStudio RealTime (Windows Components)	Rational Solutions for Windows	<i>Rational Software Server Products Installation Guide</i> <i>Installing and Configuring Rational RequisiteWeb</i>
SoDA for FrameMaker	UNIX	DevelopmentStudio (UNIX Components) <i>or</i> DevelopmentStudio RealTime (UNIX Components)	Rational Solutions for UNIX	<i>Rational SoDA for Frame Installation Guide</i>
TestManager	Windows	DevelopmentStudio (Windows Components) <i>or</i> DevelopmentStudio RealTime (Windows Components)	Rational Solutions for Windows	<i>Rational Software Desktop Products Installation Guide</i>
UNIX test agent ⁵	UNIX	Windows Components license used for Test Manager.	Rational Test Agent	<i>Rational Software Desktop Products Installation Guide</i>

- 1 Four valid license options are: Rational Suite DevelopmentStudio (UNIX Components), Rational Suite DevelopmentStudio RealTime (UNIX Components), Rational Suite DevelopmentStudio (Windows Components), or Rational Suite DevelopmentStudio RealTime (Windows Components).
- 2 ClearQuest and RequisitePro can be used natively on a Windows desktop or, alternatively, UNIX users can gain access to the data stores through the product's web interface, which requires installation of the product's web server software on Windows. Rational ClearQuest Web Server and Rational RequisiteWeb Server require floating licenses. NOTE: ClearQuest client is also available as a UNIX product that can be run natively on UNIX.
- 3 These three products are known together as the PurifyPlus family of developer tools.
- 4 Rose is available with Rational Suite DevelopmentStudio. Rose RealTime is available with Rational Suite DevelopmentStudio RealTime.
- 5 Although shipped on its own CD, UNIX test agent software works in conjunction with Rational TestManager. Access to UNIX test agent functionality is available only through Rational TestManager, which is run from within the Windows environment.

Installation Roadmap

Summary of the Installation Guide Chapters

The table below provides a brief overview of the chapters in this guide.

Table 2 Installation Guide Chapter Summary

Chapter	Description
<i>Overview</i>	Overview of software and documentation components, required licenses, and the typical install scenario.
PART 1: INSTALLATION	
<i>Before You Install</i>	Provides information about the tasks you need to perform before you install the software. Topics include hardware and software requirements and planning your installation.
<i>Installing the Product</i>	Provides instructions about how to install Rational Suite (UNIX Components), Rational Suite (Windows Components), and the online documentation.
<i>After You Install</i>	Provides information about configuring Rational Purify, Rational PureCoverage, Rational Quantify, Rational Rose, and Rational SoDA for FrameMaker.
PART 2: LICENSING	
<i>Understanding Rational Suite Licensing</i>	Provides information about license types and how to request a license using AccountLink or using the fax request form.
<i>Administering Licenses</i>	Provides information about managing licenses.
<i>Setting up Redundant UNIX License Servers</i>	Provides information about setting up and starting secondary and backup Rational license servers on UNIX.
<i>Installing Rational License Server Software on Windows</i>	Provides instructions on how to set up a Windows server for the Rational Suite (Windows Components).
APPENDICES	
<i>Accessing the CD Drive</i>	Provides basic instructions for loading software from CD media.
<i>Troubleshooting</i>	Provides information about troubleshooting your installation.

Walkthrough of a Typical Installation

The following table outlines the Rational Suite for UNIX installation that we expect would satisfy the needs of most of our customers. It also points you to the sections of this guide where you can find information to help you with each step.

Table 3 The Typical Installation

Activity	For information	Comments
Plan the installation	Read the chapters: <ul style="list-style-type: none"> • <i>Before You Install</i> on page 29 • <i>Understanding Rational Suite Licensing</i> on page 83 	Decide on the product components you will install, determine the systems that will be required in your environment, and ensure that space and memory requirements are met.
Install the Rational license server Software on UNIX and the Rational Suite (UNIX components)	If this is an upgrade, read <i>Upgrading Rational Suite</i> on page 42. If this is a new install, read <i>Installing Rational Suite (UNIX Components)</i> on page 42.	Both reference sections are found in the chapter <i>Installing the Product</i> . When installing the UNIX components, select the "Typical" install option.
Test the licensing of the Rational Suite (UNIX components)	Read <i>Integrating UNIX Products That Are Not Part of the Standard Suite</i> on page 57.	
Configure the Rational Suite (UNIX components)	Read <i>Post Install Configuration for the UNIX Components</i> on page 68 in the chapter <i>After You Install</i> .	
Install the Rational Suite Online Documentation, and test your installation.	Read the following: <ul style="list-style-type: none"> • <i>Installing the Product Documentation on UNIX</i> on page 58 • <i>Verifying Your Documentation Installation</i> on page 61 	The online documentation is installed on a UNIX host, and viewed using a web browser.
Check that the Windows host is correctly networked to the UNIX license server	Unless your network is severely restricted, a successful ping of the UNIX machine from a DOS window should be sufficient to confirm this.	The typical install assumes a single UNIX license server configuration, serving both Windows and UNIX licenses.
Install the Rational Suite (Windows components)	Read <i>Installing Rational Suite (Windows Components)</i> on page 62.	

Table 3 The Typical Installation

Activity	For information	Comments
Configure the Windows server to use the UNIX license server	Read <i>Setting Up The License</i> on page 76.	The typical install assumes a single UNIX license server configuration.
Configure and test the web interfaces (if applicable) on the Windows system	Read <i>Configuring Rational RequisiteWeb and Rational ClearQuest Web Clients</i> and <i>Configuring ClearCase LT Server and Web Client</i> on page 77.	RequisitePro, ClearCase LT, and ClearQuest can be run on Windows and accessed from UNIX through a web browser.

Additional Install Activities

Activity	For information	Comments
Install ClearCase LT as a native UNIX client and server.	Read <i>Installing and Removing Supplementary Rational Products</i> on page 63.	Install ClearCase host software and then install ClearCase LT native UNIX software on the UNIX host.
Install ClearQuest as a native UNIX client.	Read <i>Installing and Removing Supplementary Rational Products</i> on page 63.	
Install a UNIX test agent.	Read <i>Installing and Removing Supplementary Rational Products</i> on page 63.	Only if you have just installed the Rational TestManager on Windows.
Install the Rational license server Software on Windows	Read the chapter <i>Installing Rational License Server Software on Windows</i> on page 111.	If you want the Rational Suite (Windows Components) to be served their licenses from a Windows server
Set up redundant license servers	For redundant UNIX license servers, read the chapter <i>Setting up Redundant UNIX License Servers</i> on page 103. For redundant Windows license servers, read <i>Setting Up Redundant Windows License Servers (Optional)</i> on page 123.	Your primary UNIX license server is typically runs on the same machine on which you install the product software, but it is possible to set up a secondary and backup license server for a more fault tolerant configuration.

Installation

This chapter will help guide you through planning your installation of the Rational Suite for UNIX. Use the *Installation Planning Checklist* on page 30 to walk you through the pre-installation steps, and ensure that you meet the requirements listed in this chapter before proceeding with the installation.

The following topics are covered in this chapter:

- *Planning Your Installation* on page 30
 - *Prepare for Suite Installation* on page 30
 - *Plan Your Suite Installation Environment* on page 32
- *Rational Suite Installation Requirements* on page 36
 - *Installation Requirements for Rational Suite (UNIX Components)* on page 36
 - *Installation Requirements for Rational Suite (Windows Components)* on page 38
 - *Installation Requirements for Online Documentation Components* on page 39

Planning Your Installation

This section helps you to prepare for your Rational Suite for UNIX product installation and server setup.

The first section, *Prepare for Suite Installation*, provides an overview of the steps you must take, and factors to be considered, before starting the product installation.

The second section, *Plan Your Suite Installation Environment*, reviews the host and license server machines required depending on the products you are installing. For your convenience, find a worksheet to help you organize information about your installation environment in *Installation Planning Worksheet* on page 35.

Prepare for Suite Installation

Table 4 provides a checklist of tasks that need to be performed *before* you install Rational Suite. Use this table as you run through steps to upgrade your Suite software or perform a new installation.

Table 4 Installation Planning Checklist

Step	Action
1 Determine how you want to set up your client/server configuration depending on the products you are planning to install.	See <i>Plan Your Suite Installation Environment</i> on page 32.
2 Verify that your environment meets the hardware and software requirements for the products you will be installing from this release of Rational Suite.	See <i>Rational Suite Installation Requirements</i> on page 36.
3 Backup your data. Backing up your data prior to installing any new software should be a regular practice. This is especially important for database products such as Rational ClearQuest and Rational Requisite Pro.	For ClearQuest, see the <i>Rational ClearQuest Product Family Installation Guide</i> . For Requisite Pro, see the <i>Rational Software Desktop Products Installation Guide and Rational Software Server Products Installation Guide</i> .

Table 4 Installation Planning Checklist

Step	Action
<p>4 Plan your product integrations and data stores.</p>	<p>If you are planning to use TestManager, ClearQuest, or RequisitePro, plan your integrations of these products, and consider how you will use the Rational Administrator to manage projects and data stores for these products. See the <i>Rational Suite Administrator's Guide</i>.</p>
<p>5 Plan the product installation order.</p> <p>Do you plan to use Rational ClearCase UNIX instead of Rational ClearCase LT UNIX?</p> <p>Do you plan to use Rational ClearCase LT UNIX?</p> <p>Do you plan to use Rational ClearQuest UNIX?</p> <p>Do you plan to use Rational SoDA?</p>	<p>If yes, install Rational ClearCase before you install Rational Suite. Refer to the ClearCase product documentation located on your ClearCase installation media for installation instructions.</p> <p>If yes, install Rational Suite (UNIX Components) first and ClearCase LT second.</p> <p>If yes, the install order of Rational ClearQuest and the Rational Suite (UNIX Components) is unimportant, however, if you are using ClearQuest with SoDA, then you must be sure to run the UNIX components post_install command after installing ClearQuest to tell SoDA where to find ClearQuest. It would be preferable, in this case, to install ClearQuest before the primary Rational Suite UNIX Components.</p> <p>You can install FrameMaker + SGML either before or after the Rational Suite installation.</p> <ul style="list-style-type: none"> • If you want to use an existing FrameMaker+SGML installation, or you choose to install FrameMaker + SGML before installing Rational Suite, you should make a note of the FrameMaker + SGML installation directory as you will need to provide this during the SoDA product installation. • If you choose to install Rational Suite first and install FrameMaker + SGML later, you will need to integrate FrameMaker + SGML with SoDA after you have installed the Rational Suite. See <i>Integrating UNIX Products That Are Not Part of the Standard Suite</i> on page 57 for information.

Table 4 Installation Planning Checklist

Step	Action
<p>Do you plan to use Rational Apex with either Rational Rose or Rational SoDA? (not applicable for Rational Suite DevelopmentStudio RealTime installations)</p> <p>Do you plan to use Rational TestManager?</p> <p>Do you plan to set up a Windows license server to serve the Windows components?</p>	<p>If yes, you may want to install Apex before you install Rational Suite. Make a note of the Apex installation directory as you need to provide this during installation.</p> <p>Alternatively, you can install Rational Suite first and Apex later. See <i>Integrating UNIX Products That Are Not Part of the Standard Suite</i> on page 57 to learn how to integrate Apex with Rose or SoDA after you have installed the Suite.</p> <p>If yes, you must install Rational Suite DevelopmentStudio (UNIX Components) <i>before</i> you install Rational TestManager. After installing and licensing TestManager, install the UNIX test agent software.</p> <p>Install and configure the license server before installing the Windows product software.</p>
<p>6 Obtain a valid license key.</p>	<p>You need to have a valid license key <i>before</i> you install the product. This can be an existing license, or a new temporary or permanent license.</p> <p>If you are using an existing license, go to Step 7.</p> <p>If you are using a temporary license, locate your license key certificate and go to Step 7.</p> <p>If you want to install the product using a permanent license, refer to the <i>Rational ClearQuest Product Family Installation Guide</i>.</p>
<p>7 You are ready to install Rational Suite.</p>	<p>See <i>Installing the Product</i> on page 41.</p>

Plan Your Suite Installation Environment

Rational Suite is designed to work in a distributed environment. Both Solaris and HP-UX versions are available, and both may be installed on the same network.

The information provided in this section provides information that will help you to pre-plan the computers you will need in your Rational Suite environment.

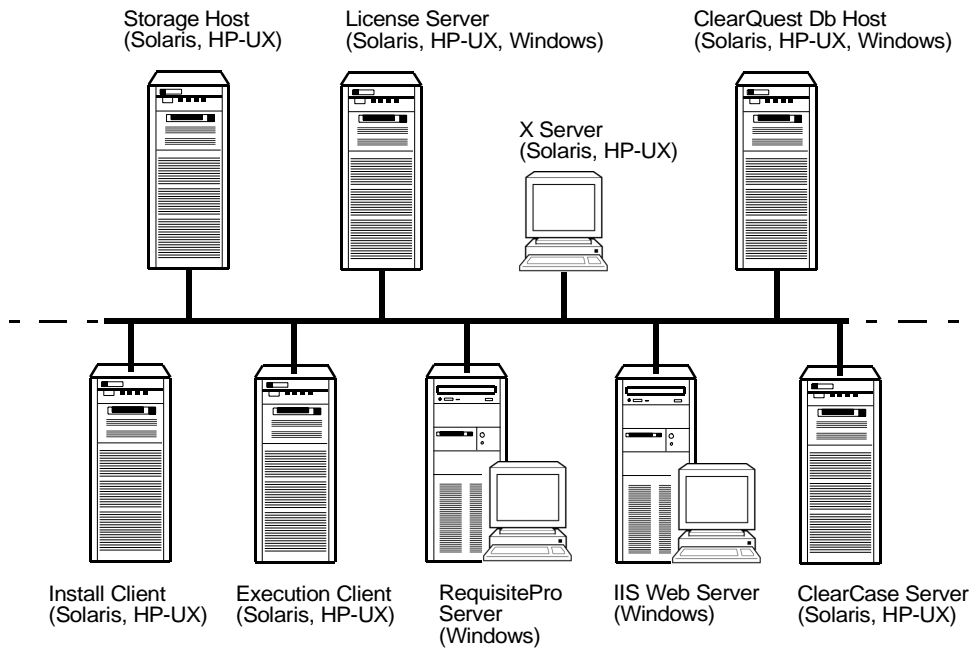
- *Installation Environment Computers* on page 33 describes the host and server computers that work together to support your development activities using Rational Suite.

- *Installation Planning Worksheet* on page 35 includes a worksheet on which you can record the details of your host and server computers, and of your license files for use during product installation.

Installation Environment Computers

For the purposes of installation, your computers assume roles as depicted in Figure 1. Note that these roles are generalized; in practice, any particular computer can serve more than one role. In fact, this is typically the case. In many installations, the roles of the storage host, license server, and install and execution clients are provided by a single UNIX host. Separate Windows servers are required to act as the RequisitePro server and IIS Web Server.

Figure 1 Installation Computers



Storage Host

This is the computer that hosts the physical disks on which the product is installed. All computers with UNIX roles must have access to the installation directory on this disk, presumably through NFS. (Operating System: Solaris or HP-UX).

Install Client

This is simply the computer on which you run the installation utility. Typically, this is the same computer as the storage host. (Operating System: Solaris or HP-UX)

Execution Client

This is any computer that will execute the component products. There may be any number of execution clients on your network. (Operating System: Solaris or HP-UX)

Note that you only need to install the UNIX Components once, on the install client and storage host. Individual workstations (execution clients) may simply launch the installed software from the installation area. Refer to the point product installation guides for individual restrictions on cross-network product launch.

X-server

This is any computer, typically an engineering workstation, which provides an X-Windows display to the end user. This role is shown for completeness; its operation is transparent to the installation.

RequisitePro Server

This Windows computer hosts the Rational RequisitePro component. This server is only needed if you are going to use RequisitePro. See the RequisitePro documentation for more information. Access to RequisitePro from a UNIX machine is available through a web interface supported by Rational RequisiteWeb.

ClearQuest Data and Web Servers

To use ClearQuest, you must set up a ClearQuest database host. ClearQuest supports three databases, which are installed separately: SQL Server (Windows only), Oracle (Windows or UNIX), and DB2 (Windows only).

Note: If you are setting up ClearQuest client as a native UNIX client in combination with the Oracle database, then you must host the Oracle database on a UNIX platform.

To access ClearQuest through its web interface, configure ClearQuest Web on a Windows ISS web server machine.

For better performance, we recommend that separate machines be used for the ClearQuest database host and the IIS web server.

ClearCase LT Server

To enable use of ClearCase LT at your site, you will need a ClearCase LT Server host on UNIX, and one or more ClearCase LT UNIX clients or ClearCase Web clients. ClearCase LT UNIX and web clients can be run on the Execution Client, but the ClearCase LT Server should be run on its own machine.

License Servers

These computers provide licensing for Rational Suite. License server configurations are described in more detail in *License Server Configurations* on page 90.

Note: In most cases, it is possible to use the same license server to manage Suite licenses and individual point-product licenses, but there are some exceptions. Refer to the point product install guides for further information.

Installation Planning Worksheet

The following worksheet may assist you in planning your Rational Suite installation environment. Note that some parts may not be known until you begin the installation.

Table 5 Installation Planning Worksheet

Storage Host	
Host name	_____
Installation directory (<i>rational_dir</i> location)	_____
Installation user name (not root)	_____
Install Client	
Host name	_____
Installation user name (not root)	_____
License Server	
Host name for UNIX licenses	_____
License port (default=27000)	_____
License file	_____
Host name for Windows licenses	_____
License port	_____
RequisitePro Server	
Host name	_____
URL for RequisiteWeb	_____
Sample Exec Client	
Host name	_____

Rational Suite Installation Requirements

This section summarizes the memory, space, and other requirements for installing the Rational Suite software and online documentation.

Installation Requirements for Rational Suite (UNIX Components)

These are the requirements for all UNIX software components to be installed from the Rational Solutions for UNIX CD onto the UNIX users host machine.

Find additional product-specific installation requirements listed in the corresponding online installation guides and release notes for each point product.

Hardware Requirements

Table 6 summarizes the basic hardware requirements for the primary UNIX Components. Be sure to check the point product install guides for additional requirements.

For ClearCase LT UNIX and ClearQuest UNIX client and server software requirements, refer to their product-specific installation guides and release notes.

Table 6 Hardware Requirements for Rational Suite (UNIX Components)

Product	Swap Space	Memory ¹	Disk Space	
			Solaris	HP-UX
PureCoverage	N/A ²	2-5 times application size	9 MB	12 MB (32-bit and 64-bit)
Purify	N/A ²	2-5 times application size	16 MB	11 MB (32-bit) 12 MB (64 bit)
Quantify	N/A ²	2-5 times application size	15 MB	10 MB (32-bit) 12 MB (64 bit)
Rose (Standard Edition only)	3 times available RAM	512 MB ³	400 MB ⁴	400 MB ⁴
Rose RealTime (RealTime Edition only)	3 times available RAM	512 MB	370 MB ⁴	N/A
SoDA for Frame	64 MB	64 MB	192 MB ⁴	252 MB ⁴
Rational Unified Process	N/A	16 MB	57 MB	57 MB

Table 6 Hardware Requirements for Rational Suite (UNIX Components)

Product	Swap Space	Memory ¹	Disk Space	
			Solaris	HP-UX
Web Interface Access (ClearQuest, ClearCase LT, ReqPro)	N/A	N/A	N/A	N/A
Recommended Suite H/W Requirements	1 GB + 50 MB/user	256 MB ³ + Purify, Quantify, and PureCoverage requirements	1 GB	1.3 GB

1 The recommended amount of memory for each product is the *suggested minimum amount*. Additional memory may improve performance; your memory requirements may be greater depending on the tasks you will be performing with each product, and what other products are resident (running concurrently on the system). For example, the construction of larger Rational Rose or Rational Rose RealTime models requires more memory.

2 Swap Space requirements are dependent on the size of the application that is being tested.

3 Plus 32 MB per simultaneous user.

4 Plus space for user data. For example, Rose requires 1-3 MB for each model.

Software Requirements

Platform Support

The following platforms are supported in Rational Suite, version 2003.06.00:

- Solaris 2.6, 2.7 (Solaris 7), 2.8 (Solaris 8), and 2.9 (Solaris 9)
- HP-UX 11.0 and 11.11(11i)

with the following point product exceptions:

- Rational Rose RealTime is not supported on HP-UX.

Dependencies on Other Software

Netscape Navigator

ClearQuest Web, Requisite Web, RUP, and Rose RealTime require a web browser. Netscape version 4.7 or later is recommended.

ClearCase LT Web requires Netscape version 7.0.

Adobe FrameMaker

Rational SoDA for FrameMaker 2003.06.00 supports FrameMaker+SGML 5.5 and 6.0, and FrameMaker 7.0. FrameMaker software is no longer shipped with SoDA; it must now be licensed and installed independently.

If you have an existing install of version 3.0.1, 3.0.3, or 3.1.0 of Rational SoDA for FrameMaker, you may choose to use the installation of FrameMaker+SGML bundled with that release. To do this:

- 1 Copy the entire SoDA directory to a new location and uninstall the previous version of Rational Suite: this way, you do not accidentally remove the previous version of Rational SoDA when you uninstall Rational Suite.
- 2 When you install Rational Suite 2003.06.00, be sure to install the new version of SoDA. When you are prompted for the FrameMaker + SGML location, enter the path to your existing installation of FrameMaker + SGML.
- 3 You may optimize disk space by removing the old SoDA software while keeping only the FrameMaker+SGML components. Refer to Technical Application Note 17972 in the **Solutions Knowledge Base** at www.rational.com/support/.

Operating System Runtime and Patch Requirements

Patches are recommended for new customers and customers experiencing problems. Contact Rational Technical Support if you encounter any compatibility difficulties after installing a patch.

For information regarding Rational Rose runtime and operating system patch requirements, refer to the *Rational Rose Installation Guide (UNIX/Linux)*.

For information regarding Rational Rose RealTime operating system patch requirements, go to the following web site:

<http://www.rational.com/support/downloadcenter/patches>

Installation Requirements for Rational Suite (Windows Components)

These are the requirements for Windows software components to be installed from the Rational Solutions for Windows CD onto Windows computers.

The Rational Suite for UNIX (Windows Components) are either desktop or server products.

Installation Requirements for Windows Desktop Components

Detailed installation requirements for the individual Rational Suite Windows Components that are desktop products can be found in the *Before You Install* chapter of the *Rational Software Desktop Products Installation Guide*.

Included below are installation requirements that relate specifically to an installation of these components in conjunction with the Rational Suite for UNIX.

The Windows Components that are desktop products are:

- Rational TestManager

Rational TestManager

You must install Rational Suite *before* you install Rational TestManager.

Rational TestManager is installed and run on a Windows platform. For use in a UNIX development environment, TestManager must work in conjunction with UNIX test agents, where the test agent software is installed and run on the UNIX host machine. If you are using the Rational TestManager, be sure to factor in installation requirements on the UNIX host for the UNIX test agents. Find complete information, including space and memory requirements, for installing Rational Test Agent (UNIX) software in the *Rational Software Desktop Products Installation Guide*.

Installation Requirements for Windows Server Components

The detailed installation requirements for Rational Suite for UNIX Windows Components that are server products, and the associated databases, can be found in the Before You Install chapter of the *Rational Software Server Products Installation Guide*.

The Windows Components that are server products are:

- Rational RequisitePro
- Rational RequisiteWeb (web interface and Rational Web Platform server)
- Rational ClearCase LT (web interface and web server)
- Rational ClearQuest Web (web interface and server).

Installation Requirements for Online Documentation Components

To install on-line documentation and associated document reader products from the Rational Solutions for UNIX Online Documentation CD, ensure your target system satisfies these space requirements.

Table 7 Installation Requirements for Rational Suite Online Documentation

Components	Disk Space
Online Documentation Files	DevelopmentStudio: 97MB DevelopmentStudio RealTime: 121 MB
Acrobat Reader	Solaris: 29.5 MB; HP: 25 MB
Netscape Navigator	Solaris: 24.5 MB; HP: 27 MB

This chapter details how to install Rational Suite and includes the following topics:

- *Upgrading Rational Suite* on page 42
- *Installing Rational Suite (UNIX Components)* on page 42
- *Installing the Rational Suite Online Documentation* on page 58
- *Installing Rational Suite (Windows Components)* on page 62
- *Installing and Removing Supplementary Rational Products* on page 63
- *Removing Rational Suite (UNIX Components)* on page 64
- *Removing Rational Suite Online Documentation Components* on page 66
- *Removing Rational Suite (Windows Components)* on page 66

If you have not reviewed *Before You Install* on page 29, you should do so *before* proceeding. Once the product install is completed, refer to *After You Install* on page 67.

Note: The term *rational_dir* is used throughout this chapter to refer to the directory under which the Rational Suite software is being installed.

Upgrading Rational Suite

Upgrading from a Recent Version (2000.02.10 or later)

If you are upgrading to version 2003.06.00 from version 2002.05.20, 2002.05.00, 2001A.04.00 or 2000.02.10, you may use your existing Rational Suite license.

- 1 Upgrade the UNIX product software by running `rs_install`. For complete instructions, see *Installing Rational Suite (UNIX Components)* on page 42. When you get to step 7 in the instructions, be sure to choose option 1 — use an existing license file — from the **Licensing Options Menu**.
- 2 After you have completed the upgrade, you may wish to remove the previous version of Rational Suite software and documentation to recover disk space. See *Removing Rational Suite (UNIX Components)* on page 64.
- 3 Upgrade the online documentation files by running `rs_install` on the Rational Solutions for UNIX Online Documentation CD as described in *Installing the Rational Suite Online Documentation* on page 58.
- 4 Upgrade the Windows product software. See *Installing Rational Suite (Windows Components)* on page 62. Any existing Rational Suite (Windows Components) installation is automatically removed before the new version is installed.

Upgrading from a Release Prior to Version 2000.02.10

License management for all Rational software products is now done through Rational AccountLink, an online licensing web tool. You need to return your old license keys and request new license keys before you can install Rational Suite. For information, see *Requesting License Keys* on page 88.

- 1 Upgrade the UNIX product software by running `rs_install`. For complete instructions, see *Installing Rational Suite (UNIX Components)* on page 42. When you get to step 7 in the instructions, be sure to choose option 2 — set up a permanent license or term license agreement — from the **Licensing Options Menu**.
- 2 Perform steps 2 through 4 in the *Upgrading from a Recent Version (2000.02.10 or later)* section above.

Installing Rational Suite (UNIX Components)

This section provides instructions about how to install the UNIX products that are provided on the Rational Solutions for UNIX CD.

The `rs_install` command is a complete installer that includes licensing setup, license checking, product installation, and product setup. Rational recommends that you follow the menus and prompts and allow `rs_install` to guide you through the installation. Default values, where provided, are enclosed in square brackets. To accept the default value, simply press the **Enter** key.

This software, or previous installations of Rational Suite, can be removed by running the `uninstall` script described in *Removing Rational Suite (UNIX Components)* on page 64.

Other supplementary UNIX software products that are provided with Rational Suite, such as ClearCase LT and ClearQuest for UNIX, are installed separately. See *Installing and Removing Supplementary Rational Products* on page 63.

Read This First

Here is some important information about the Rational Suite (UNIX Components) install and uninstall scripts that you need to know before beginning the installation.

Installing into Secure Environments

Problems may occur when trying to perform a remote installation of Rational Suite into a secure environment if the environment does not have access to `rsh` or `remsh`. (For example, remote access to other machines is through `ssh`.) To install Rational Suite in this situation, perform a local installation of the software rather than a remote installation. If you experience further problems, contact Rational Technical Support.

Installing Multiple OS Versions of Rational Suite

If you wish to install different OS versions of Rational Suite (for example, Solaris and HP-UX) on the same file server, it is recommended that you install them in different Rational product directories (referred to in later examples as *rational_dir*). If you install them under the same Rational directory, you will not be able to uninstall a single OS version later. The `uninstall` script removes *all* OS versions that reside in the same Rational directory.

Stopping and Restarting an Installation

You can stop the installation by entering `q` to quit. If you choose `q`, most of your input is saved in a user defaults file located in *rational_dir/config/defaults*. The file name is in the following format: `rs_install.release_name.user_name`.

The user defaults file contains general purpose defaults specific to you and the license server that you configure. It also keeps track of the product-specific information for the installation of this specific Suite and version.

Note: If you enter **q!**, your entries are not saved to the user defaults file.

You can restart the installation by running **rs_install** again. You should notice that many of your entries appear as the default value. Simply press the Enter key to continue with the installation. After you get to the **Enter Install Mode** screen you can choose one of three options:

- Ask – if you want to be prompted whether or not to reinstall the product
- Skip – if you want **rs_install** to automatically skip any product that has already been installed
- Reinstall – if you want **rs_install** to automatically uninstall and reinstall the product.

Installing the Product Software

Use the following procedure to install either Rational Suite DevelopmentStudio or Rational Suite DevelopmentStudio RealTime. While most of the steps are identical, some of the steps are particular to one installation or the other, and this is identified.

To install Rational Suite (UNIX Components) product software:

- 1 Log on to the install client. This can be any UNIX computer that:
 - Gives you access to a CD drive
 - Mounts the file system into which you will load the Rational Suite release
 - Runs the operating system specified on the Rational Solutions for UNIX CD (Solaris 2.6, 7, 8 or 9; or HP-UX 11.0 or 11.11)

Note: You do not need root privileges to install the product.

- 2 Place the Rational Solutions for UNIX CD in the CD drive.

If the CD drive is not mounted, supplemental instructions can be found in the appendix, *Accessing the CD Drive* on page 131.

- 3 Run the installation script, **rs_install**, which is located at the root level of the CD.

```
./rs_install
```

rs_install can be invoked with a number of options. For example, the **-no_log** (**-nl**) option can be used to stop **rs_install** from creating a log file. To see a listing of all available options, run

```
./rs_install -help
```

4 Enter the directory where you will install Rational Suite DevelopmentStudio.

Note: For the Rational directory, supply a pathname such as: /vendor/rational. The directory needs to be visible on all computers from which you want to run this product, and must be writable by the installer's user name. Also, the NFS name for the directory must be the same on all computers.

5 Read through the license agreements and answer yes (y) to accept the terms.

6 Choose option 1 from the **Product and License Configuration Selection Menu** to install Rational Suite DevelopmentStudio on either Solaris or HP. Choose option 2 from the **Product and License Configuration Selection Menu** to install Rational Suite DevelopmentStudio RealTime on Solaris. Table 8 and Table 9 summarize *all* of the options available for this menu when running on Solaris and HP, respectively.

Note: Regardless of the option selected from this menu, if `rs_install` does not find the Rational license server files already installed on the target machine, it will install them automatically.

Table 8 Product and License Configuration Selection Menu for Solaris

Option	Description
1	Rational Suite DevelopmentStudio for UNIX - Choose this option to install Rational Suite DevelopmentStudio.
2	Rational Suite DevelopmentStudio RealTime for UNIX - Choose this option to install Rational Suite DevelopmentStudio RealTime.
3-7	<p>Rational Rose for UNIX Rational Rose RealTime for UNIX Rational SoDA for UNIX Rational PurifyPlus for UNIX Rational Purify, Quantify, and/or PureCoverage for UNIX</p> <p>Choose one of these options to install an individual point product.</p> <p>Note: You need to have a point product license key for each point product you specify. These options are not intended to be used with a Rational Suite license. Refer to the appropriate point product installation guide and release notes for supplementary installation information for these products.</p> <ul style="list-style-type: none"> • <i>Rational Rose Installation Guide</i> (for option 3) • <i>Rational Rose RealTime Installation Guide</i> (for option 4) • <i>Installing and Getting Started: Rational PurifyPlus, Purify, PureCoverage, Quantify</i> (for options 6 and 7)
8	License setup only - Choose this option to run the license software install and setup, bypassing product installation. You can also use this option to start a license server process for other Rational products.

Table 9 Product and License Configuration Selection Menu for HP

Option	Description
1	Rational Suite DevelopmentStudio for UNIX - Choose this option to install Rational Suite DevelopmentStudio.
2-5	<p>Rational Rose for UNIX Rational SoDA for UNIX Rational PurifyPlus for UNIX Rational Purify, Quantify, and/or PureCoverage for UNIX</p> <p>Choose one of these options to install an individual point product.</p> <p>Note: You need to have a point product license key for each point product you specify. These options are not intended to be used with a Rational Suite license.</p> <p>Refer to the appropriate point product installation guide and release notes for supplementary installation instructions for these products:</p> <ul style="list-style-type: none"> • <i>Rational Rose Installation Guide</i> (for option 2) • <i>Installing and Getting Started: Rational PurifyPlus, Purify, PureCoverage, Quantify</i> (for options 4 and 5)
6	License setup only - Choose this option to run the license setup, bypassing product installation. You can also use this option to start a license server process for other Rational products.

7 Choose your preferred licensing method from options summarized in Table 10.

Table 10 Licensing Options Menu

Option	Description
1	<p>Choose this option if you have an <i>existing</i> license file for Rational Suite version 2000.02.10 or later. This is a product-only installation that does not install Rational license server files.</p> <p>Note: Rational changed the way licenses are handled as of version 2000.02.10. If you are upgrading from a release <i>prior</i> to version 2000.02.10, then you must return your old license, acquire a new license, and then run rs_install again, selecting option 2 on this menu. For more information, see <i>Acquiring License Keys</i> on page 86.</p> <p>Caution: If you are not already using the latest Rational license server software files (based on FLEXlm 7.0f), then note that selecting option 1 on this menu will not upgrade the installed license server software automatically. It is highly recommended that you upgrade your installed license server software from FLEXlm 6.0i to FLEXlm 7.0f to reduce the likelihood of internal errors or vendor daemon errors. To upgrade, run rs_install again, select option 2 from this menu, and enter the license key manually when you get to step 11.</p>

Table 10 Licensing Options Menu

2	<p>Choose this option if you have a permanent license key or a Term License Agreement (TLA). This is a full installation that upgrades both the Rational Suite products and the Rational license server files.</p> <p>Note: You need to have either the license file (<i>filename.upd</i>) stored in a known location on the license server or you need a printout of the contents of the license file available to proceed with the installation. rs_install prompts you to provide the location of the license file or gives you the option to enter the license key information manually. If you do not have a license file containing your license keys, see <i>Requesting License Keys</i> on page 88.</p>
3	<p>Choose this option if:</p> <ul style="list-style-type: none">• you do not have a permanent license yet and you want to install the product immediately; or• you want to install the product for evaluation purposes. <p>This is a full installation that upgrades both the Rational Suite products and the license server software.</p> <p>Because the license keys are uncounted, option 3 does not start the license server as part of the license check if only UNIX Components are being served. A license server process is only started if you are serving both UNIX and Windows evaluation seats from a UNIX license server. This is because the Windows License Key Administrator (LKAD) requires the port and host information (<i>port@host</i>) when configuring access to a UNIX license server.</p> <p>Note: You need to have your license key certificate available as rs_install prompts you for information contained in the certificate.</p>

8 Do one of the following:

- If you are using an existing license, go to Step 9.
- If you are using a temporary license, go to Step 10.
- If you are using a permanent license, go to Step 11.

9 Enter the path to the license file or enter the port information.

Note: If the license server is running, it is preferable to specify the port. Enter *port@host*, where *port* is the TCP/IP port number used by the license server and the *host* is the hostname of the license server.

Go to Step 13.

10 Enter the temporary license key information from your license key certificate:

- License key
- License type
- Expiration date

Note: You are now prompted for your license key information for both the Rational Suite (UNIX Components) and Rational Suite (Windows Components). If you are using a UNIX license server to manage the Windows Components licenses, enter your temporary license key information. If you are using a Windows server to manage licenses for the Windows Components, or you do not plan to use the Windows Components, enter 0.

When you have finished, go to Step 13.

11 Provide your license file information by doing one of the following:

- Import the information from the license file automatically by giving the path to the .upd file. This is the file that AccountLink sends to an e-mail account when you request a license. It has the filename format similar to *license_for_server.upd*.
- Enter **none** to provide the license key information manually. You will need a printout of the content of the .upd file. Follow the prompts to enter the information.

12 Define the location for the license.dat file that will be created from the information supplied by the *license_for_server.upd* file. By default, **rs_install** creates the license.dat file and stores it in the *rational_dir/config* directory.

Choose either the default path (option 1) that **rs_install** has selected or choose option 2 to specify an alternate path.

13 Proceed with the **License Check Menu**. Do one of the following:

- If you are using an existing license, select options 1 and 3; these options are the default setting for this menu in **rs_install**. There is no need to restart the license server (option 2) if it is already running.
- If you are using a permanent floating license, run through options 1-3 sequentially (enter 1-3 at prompt) and forward to the next menu. If you are setting up a permanent node-locked license, run through option 1 only. Note that these options are the default settings provided by **rs_install**.
- If you are using a Rational Suite (UNIX Components) temporary license, run through option 1 and forward to the next menu. If you are using a Rational Suite (Windows Components) temporary license, run through options 1-3 sequentially and forward to the next menu. Note that these options are the default settings provided by **rs_install**.

14 Select whether you want to use the typical install or to customize your installation from the **Install Preference Menu** (see Figure 2). Note that both the typical and custom install options are available for installs of all the available Rational Suite for UNIX editions: Rational Suite DevelopmentStudio (Solaris and HP-UX) and Rational Suite DevelopmentStudio RealTime (Solaris).

Select the **Typical** install to use a set of default install options and proceed with a silent install followed by the post-install configuration phase. See Figure 2 and Figure 3 for the predefined defaults associated with the typical software install. If you choose this option, you will be prompted only once: during the post-install phase, you are asked for the FrameMaker + SGML directory for use with SoDA (see step 28).

Select the **Custom** install if the UNIX components you wish to install are different from the default. Proceed to step 15 to tailor your installation.

Figure 2 Typical/Custom Install Preference

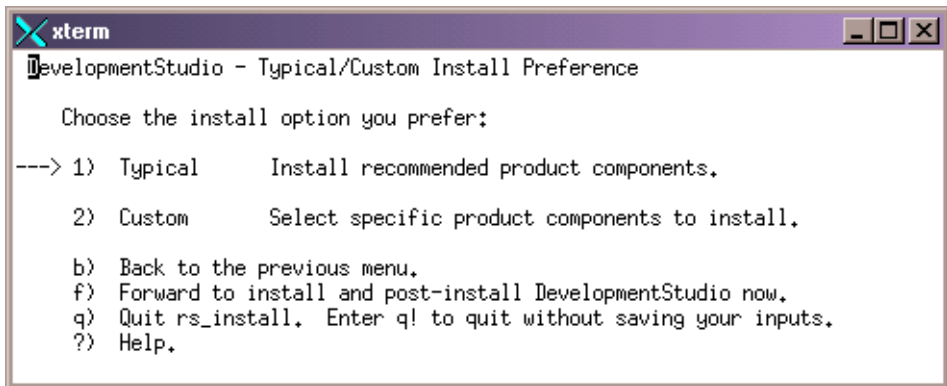
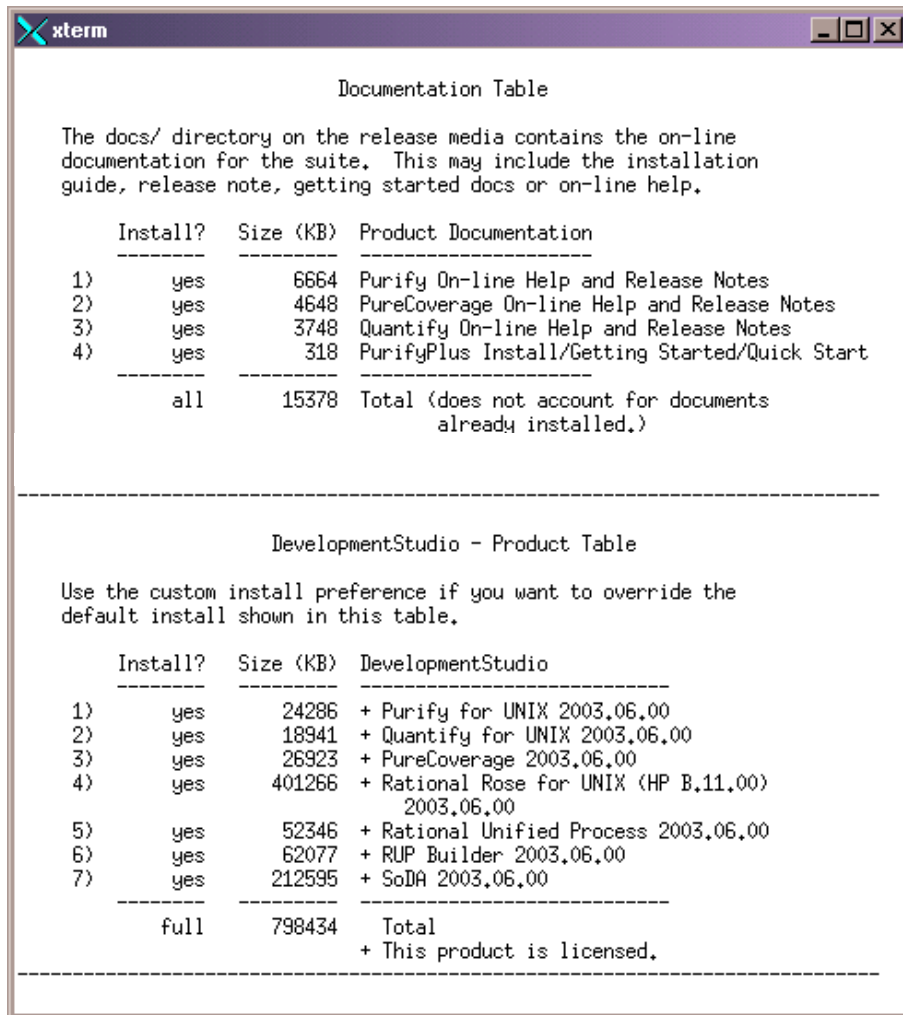


Figure 3 Typical Software Install - Component Listing: HP-UX

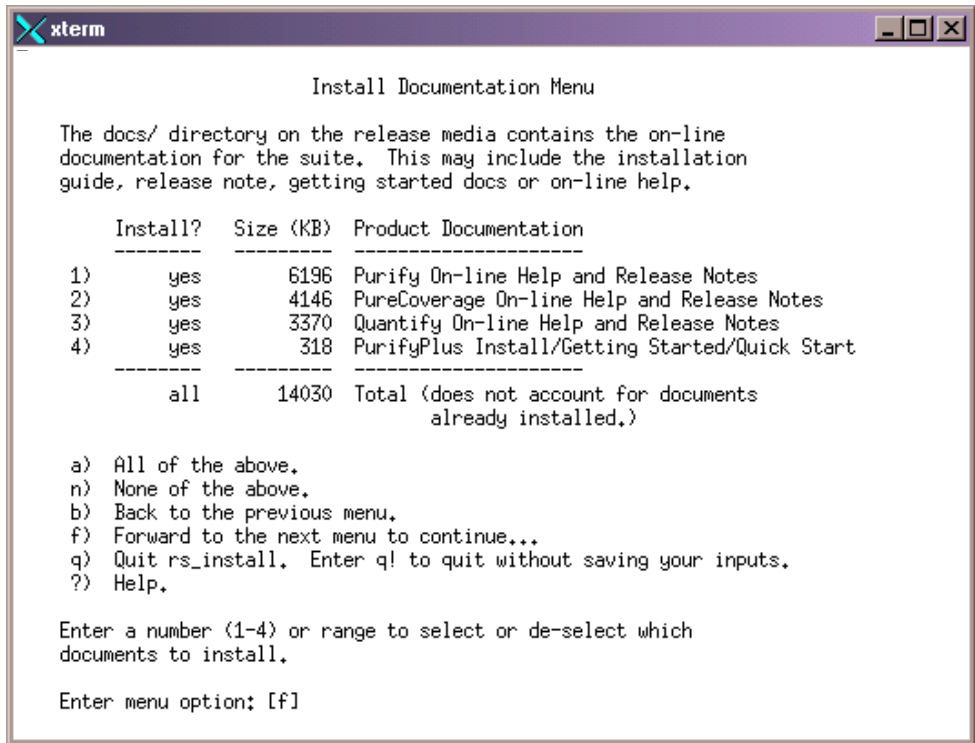


15 Figure 4 shows the **Install Documentation Menu** (on Solaris).

This step allows you to install the optional documentation from the Rational Solutions for UNIX product software CD. Do not confuse this with the full Suite documentation installation performed later from the Online Documentation CD.

If you choose to install this Help, it will set up part of the Suite documentation directory hierarchy.

Figure 4 Custom Software Install - Install Documentation Menu: Solaris



16 The **Product Customization Menu** allows you to refine your product installation. Figure 5 and Figure 6 are examples of this menu that show the default settings for Rational Suite DevelopmentStudio on Solaris and Rational Suite DevelopmentStudio RealTime on Solaris, respectively. To change the installation setting between **yes** and **no** for product entry in this menu, enter the product number. Once you have the settings you desire, enter **f** to forward to the next menu.

If you are installing the Rational Suite DevelopmentStudio RealTime, skip to Step 18.

Figure 5 Custom Software Install - Product Customization Menu: Solaris

```
xterm
DevelopmentStudio - Product Customization Menu

Install?  Size (KB)  DevelopmentStudio
-----
1)  yes    21217  + Purify for UNIX 2003,06,00
2)  yes    15932  + Quantify for UNIX 2003,06,00
3)  yes    15058  + PureCoverage 2003,06,00
4)  yes    347309 + Rational Rose for UNIX 2003,06,00
5)  yes    52346  + Rational Unified Process 2003,06,00
6)  yes    62077  + RUP Builder 2003,06,00
7)  yes    174993 + SoDA 2003,06,00
-----
full    688932  Total
                    + This product is licensed.

b) Back to the previous menu.
--> f) Forward to the next menu to continue...
q) Quit rs_install. Enter q! to quit without saving your inputs.
?) Help.

Enter a product number (1-7) or range to (de)select.

Enter menu option: [f] 1-4
```

Figure 6 Product Customization Menu: Solaris (RealTime Edition)

```
xterm
DevelopmentStudio RealTime - Product Customization Menu

Install?  Size (KB)  DevelopmentStudio RealTime
-----
1)  yes    21217  + Purify for UNIX 2003,06,00
2)  yes    15932  + Quantify for UNIX 2003,06,00
3)  yes    15058  + PureCoverage 2003,06,00
4)  yes    515511 + Rational Rose RealTime for UNIX 2003,06,00
5)  yes    52346  + Rational Unified Process 2003,06,00
6)  yes    62077  + RUP Builder 2003,06,00
7)  yes    174993 + SoDA 2003,06,00
-----
full    857134  Total
                    + This product is licensed.

b) Back to the previous menu.
--> f) Forward to the next menu to continue...
q) Quit rs_install. Enter q! to quit without saving your inputs.
?) Help.

Enter a product number (1-7) or range to (de)select.

Enter menu option: [f] █
```

17 The Rational Rose Product Component Customization Menu allows you to customize your Rose installation. This menu is presented only if you are installing Rational Rose from the Rational Suite DevelopmentStudio. To toggle an installation setting between **yes** and **no**, enter the product number. Once you have the settings you want, enter **f** to forward to the next menu.

Warning: Some components have dependencies and deselecting one may affect the execution of another. Contact Rational Technical Support for more information about component dependencies.

18 The SoDA Product Configuration Menu allows you to customize Rational SoDA for FrameMaker integrations with other Rational products. Options are summarized in the following table. Note that all options install SoDA demos and training files.

Option	Description
1	Choose this option if you want to integrate Rational SoDA for FrameMaker with Rational Rose and Rational ClearQuest. This option applies to Rational Suite DevelopmentStudio.
2	Choose this option if you want to integrate Rational SoDA for FrameMaker with Rational Rose RealTime and Rational ClearQuest. This option applies to Rational Suite DevelopmentStudio RealTime. Note: To use this option, you need to have Rational Rose RealTime installed, either as a point product or as part of Rational Suite DevelopmentStudio RealTime edition of Rational Suite.
3	Choose this option if you want to integrate Rational SoDA for FrameMaker with Rational Rose. This option applies to Rational Suite DevelopmentStudio.
4	Choose this option if you want to integrate Rational SoDA for FrameMaker with Rational Rose RealTime. This option applies to Rational Suite DevelopmentStudio RealTime. Note: To use this option, you need to have Rational Rose RealTime installed, either as a point product or as part of Rational Suite DevelopmentStudio RealTime edition of Rational Suite.
5	Choose this option to install <i>all</i> Rational SoDA for FrameMaker domains (Apex, Rose, Summit, TestMate, ClearCase, ClearQuest, and Rose RealTime). Note: To use this option, you need to have Rational Rose RealTime installed, either as a point product or as part of Rational Suite DevelopmentStudio RealTime edition of Rational Suite.

- 19 The **SoDA Product Component Customization Menu** allows you to customize your SoDA installation. For details on SoDA component options, read *Configuring Rational SoDA for FrameMaker* on page 72. To toggle the installation setting between **yes** and **no**, enter the product number. After you have the settings you want, enter **f** to forward to the next menu.
- 20 The **Install Documentation Menu** allows you to install online Help for Rational Purify, Quantify, and PureCoverage.
- 21 The **Enter Install Mode** menu allows you to choose whether you want **rs_install** to prompt you before it reinstalls a product, skip a product if it is already installed on your system, or reinstall the product without confirmation.

At this time, the installation process starts.

- 22 You are prompted to configure the cache directory for each of Rational Purify, Rational PureCoverage, and Rational Quantify. For each product, do one of the following:

- Press Enter to accept the default directory.
- Enter a fully-qualified path to specify an alternate cache directory. Do this if there is not enough disk space under the default cache directory.

If you are installing Rational Suite DevelopmentStudio RealTime, skip to Step 27.

- 23 For Purify you are asked if you would like to configure a Rational ClearQuest integration with Purify. If you answer 'yes', you are prompted for three additional pieces of information before proceeding with the self-test.
 - a The Rational ClearQuest client interface (X Windows or Web).
 - b The Rational ClearQuest database name. The default provided is "none", meaning that the user will be prompted for the database name when they try to connect to the database.
 - c The Rational ClearQuest Web URL, identifying your ClearQuest web server.

For PureCoverage you are asked if you would like to configure a Rational ClearQuest integration. If you answer 'yes', you are prompted for the same three pieces of information as in the Purify set-up, but the values you entered for the Purify set-up become the default values provided in the PureCoverage set-up.

The instructions are presented clearly by **rs_install**, but for additional details you can refer to the *Installing and Getting Started: Rational PurifyPlus, Purify, PureCoverage, Quantify* guide, which is available online.

- 24 If you are installing Rational Rose from the Rational Suite DevelopmentStudio, you are now prompted:

Are you configuring Rational Rose for UNIX/Linux to work with Apex?

Enter **y**[Yes] or **n**[No]. If you choose **y**, you will need to provide the path to the Apex directory.

- 25 Define the read/write privileges to be one of **Owner writable**, **Owner and group writable**, or **Writable by all**.
- 26 If you are installing RUP Builder, you are now prompted to provide the path to the JVM program executable. The directories in your path that contain a valid Java program executable are listed. You can choose one of these, or enter an alternate fully-qualified path.
- 27 If you are installing SoDA, you are now prompted:
Are you configuring SoDA to work with Apex?
Enter **y**[Yes] or **n**[No]. If you choose **y**, you will need to enter the Apex directory.
- 28 If you are installing SoDA, you are prompted to enter the FrameMaker + SGML directory. Do one of the following:
 - If you do not have FrameMaker + SGML installed on your system, enter **none**. Continue with the installation and see *Integrating UNIX Products That Are Not Part of the Standard Suite* on page 57 after you have finished installing.
 - If you have FrameMaker + SGML installed, enter the path.

Note: SoDA no longer includes FrameMaker + SGML. FrameMaker + SGML version 5.5, 6.0, or 7.0 must be installed separately.
- 29 If you are installing Rational Rose from the Rational Suite DevelopmentStudio, you are prompted to indicate if you want to use Rational Rose with SoDA.
Enter **y**[Yes] or **n**[No]. If you choose **y**, you will be prompted to provide the path to the Rose installation. You can accept the default (*rational_dir/releases/rose.2003.06.00*) or specify another path.
- 30 You are prompted to indicate if you want to use ClearQuest with SoDA.
Enter **y**[Yes] or **n**[No]. If you choose **y**, you will be prompted to provide the path to the ClearQuest installation. You can accept the default (*rational_dir/releases/ClearQuestClient.2003.06.00*) or specify another path.
- 31 If you are installing Rational Rose RealTime from the Rational Suite DevelopmentStudio RealTime, you are prompted if you want to use Rational Rose RealTime with SoDA? Enter **y**[Yes] or **n**[No].
- 32 The **Web Setup Menu** allows you to enter the URLs for a Requisite Web server or a ClearQuest Web server. These applications run on a Windows server and can be accessed by UNIX developers through a web browser. Do one of the following:
 - If you do not plan to use these web interfaces, enter **none**.

- If you do not know the URL for these servers, enter **none** and run the **web_setup** command after you have the URLs. (See *Configuring Rational RequisiteWeb and Rational ClearQuest Web Clients* on page 77.)
- If you know the URLs, enter them now.

Your installation of the Rational Suite (primary UNIX Components) is now complete. To install the supplementary UNIX components, refer to *Installing and Removing Supplementary Rational Products* on page 63.

Running the Post Install

The final phase of the custom **rs_install** described above runs the **post_install** alias to perform post-installation software set-up and integration tasks. The **post_install** command allows you to run a subset of **rs_install** functionality that includes prompts for integrating other UNIX products with Rational Suite.

If you wish to exit **rs_install** before or during this post-install phase and re-run the post-install later you may do so. The **post_install** script is located in the same directory as **rs_install**. For complete post-install information, refer to the chapter *After You Install*.

Product-specific Post Install Programs

You also have the option of re-running a post-install on any of the point products individually. The following product-specific post install scripts are available:

Table 11 Rational Product Post-install Scripts

Product	To run the post install
PureCoverage	\$ cd <i>rational_dir/releases/purecov.sys.version</i> \$./purecov.configure
Purify	\$ cd <i>rational_dir/releases/purify.sys.version</i> \$./purify.configure
Quantify	\$ cd <i>rational_dir/releases/quantify.sys.version</i> \$./quantify.configure
Rose	\$ cd <i>rational_dir/releases/rose.version/install</i> \$./post_install
SoDA	\$ cd <i>rational_dir/releases/soda.version/install</i> \$./post_install Find details on the SoDA post-install options in <i>Configuring Rational SoDA for FrameMaker</i> on page 72.

Integrating UNIX Products That Are Not Part of the Standard Suite

After you have installed the Rational Suite (UNIX Components), you may choose to install other UNIX products that integrate with products in the Suite, but that are not delivered as primary Rational Suite (UNIX Components). Here are some examples:

- ClearQuest (UNIX native client or CQ Web)
- Adobe FrameMaker+SGML (required to use Rational SoDA)
- Rational Apex

If you answered **no** to integrating any of these products with the Rational Suite (UNIX Components) when you first ran **rs_install**, or if you answered **yes** but want to modify the information you provided earlier, you may run the **post_install**.

Verifying Your Software Installation

It is recommended that you verify that your installation is working properly. This test ensures that both the installation and licensing are working. If you experience any problems, refer to the *Administering Licenses* chapter on page 93, and the *Troubleshooting* chapter on page 133.

Note that Rational Rose, SoDA, and ClearQuest require configuration before actual use. For configuration information, please see the *Configuring Rational Rose for UNIX* on page 70, and the *Configuring Rational SoDA for FrameMaker* on page 72 of this document. For ClearQuest configuration, please see the *Rational ClearQuest Release Notes* and *Rational ClearQuest Product Family Installation Guide* documents.

To verify your installation:

Test UNIX Components installation and licensing by running Rose and SoDA.

For csh, tcsh, or compatible shells:

```
% source rational_dir/rs_setup.csh
% rose
% soda
```

For sh, ksh, bash, or other Bourne-compatible shells:

```
$ . rational_dir/rs_setup.ksh
$ rose
$ soda
```

The **rs_setup** script is used to set up the Rational Suite runtime environment on UNIX platforms. For more information, see *Setting up the UNIX Environment* on page 78.

Installing the Rational Suite Online Documentation

Install the online documentation *after* you have installed the Rational Suite (UNIX Components).

Installing the Product Documentation on UNIX

Use the following procedure to install the online documentation.

To install the Rational Suite online documentation:

- 1 Log on to the install client. This can be any UNIX computer that:
 - Gives you access to a CD drive.
 - Mounts the file system into which you will load the Rational Suite release.
 - Runs the operating system specified on the Rational Solutions for UNIX Online Documentation CD: Solaris 2.6, 7, 8, 9 or HP-UX 11.0, 11.11 (11i).

Note: You do not need root privileges to install the documentation.

- 2 Place the Rational Solutions for UNIX Online Documentation CD in the CD drive.

If your CD drive is not mounted, look for supplemental instructions on mounting the drive in the appendix *Accessing the CD Drive* on page 131.

- 3 Run the installation script, **rs_install**, which is located at the root level of the CD.

```
./rs_install
```

rs_install can be invoked with a number of options. For example, the **-no_log (-nl)** option can be used to stop **rs_install** from creating a log file. To see a listing of all available options, run

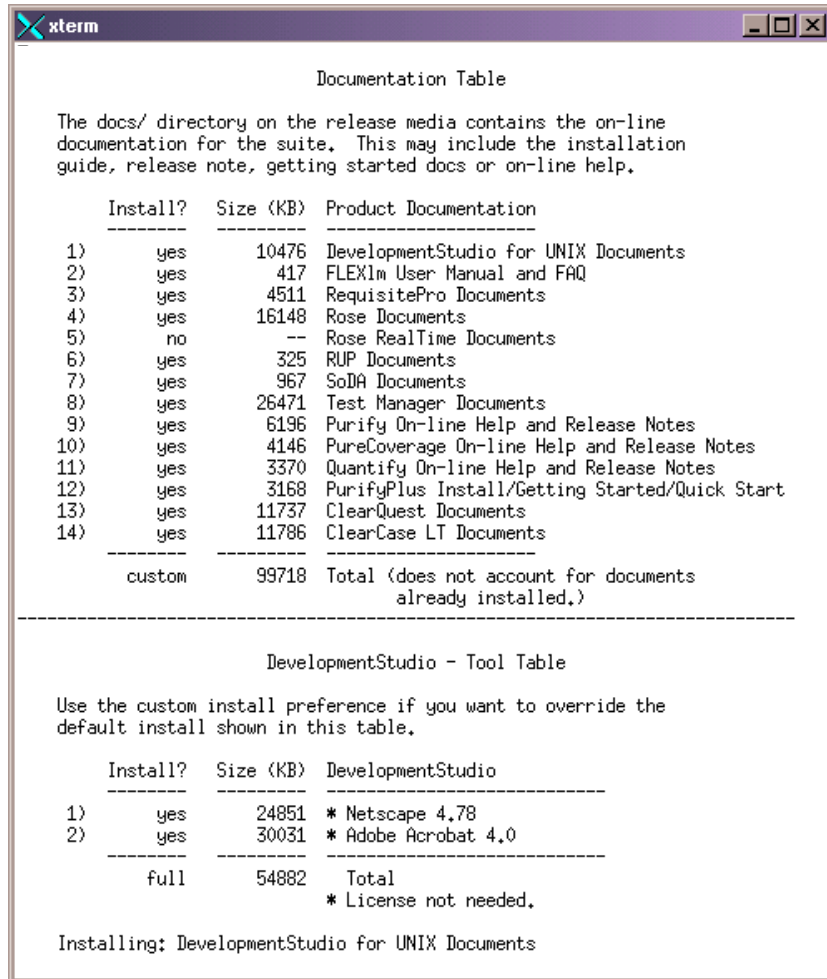
```
./rs_install -help
```

- 4 While the **Enter Install Location** screen is displayed as part of the documentation install, the **rs_install** script automatically selects your product install location because this is the required install location. No input is required on your part.
- 5 Next you must select whether you want to use the typical install or to customize your documentation installation from the **Install Preference Menu** (see Figure 2).

Select the **Typical** install to use a set of default install options and proceed with a silent install. The default options are shown in the **Documentation Table** and **Tool Table** as shown in Figure 7. (Note: The install sizes listed when you install may be slightly different from those shown in Figure 7.) If you choose the Typical install, the install completes without further input.

Select the **Custom** install if the documentation components and tools you wish to install are different from the typical install default options. Proceed to step 6 to tailor your installation.

Figure 7 Typical Documentation Install - Component Tables: Solaris



6 The **Install Documentation Menu** allows you to refine your online documentation installation. The default settings are shown in Figure 8. (Note: The install sizes listed when you install may be slightly different from those shown here.)

To toggle the installation setting between **yes** and **no**, enter the product documentation number. Once you have the settings you desire, enter **f** to forward to the next menu.

Figure 8 Custom Documentation Install Menus: Solaris (RealTime Edition)

```
xterm
-----
                          Install Documentation Menu

The docs/ directory on the release media contains the on-line
documentation for the suite. This may include the installation
guide, release note, getting started docs or on-line help.

      Install?   Size (KB)   Product Documentation
-----
1)      yes      10476   DevelopmentStudio for UNIX Documents
2)      yes       417    FLEXlm User Manual and FAQ
3)      yes      4511   RequisitePro Documents
4)      no        --    Rose Documents
5)      yes     40051   Rose RealTime Documents
6)      yes       325    RUP Documents
7)      yes       967    SoDA Documents
8)      yes     26471   Test Manager Documents
9)      yes       6196   Purify On-line Help and Release Notes
10)     yes       4146   PureCoverage On-line Help and Release Notes
11)     yes       3370   Quantify On-line Help and Release Notes
12)     yes       3168   PurifyPlus Install/Getting Started/Quick Start
13)     yes     11737   ClearQuest Documents
14)     yes     11786   ClearCase LT Documents
-----
      custom    123621   Total (does not account for documents
                          already installed.)

a) All of the above.
n) None of the above.
b) Back to the previous menu.
f) Forward to the next menu to continue...
q) Quit rs_install. Enter q! to quit without saving your inputs.
?) Help.

Enter a number (1-13) or range to select or de-select the documents to install.
Enter menu option: [f]
-----

                          DevelopmentStudio RealTime - Tool Customization Menu

      Install?   Size (KB)   DevelopmentStudio RealTime
-----
1)      yes      24851   * Netscape 4.78
2)      yes      30031   * Adobe Acrobat 4.0
-----
      full      54882   Total
                          * License not needed.

b) Back to the previous menu.
--> f) Forward to the next menu to continue...
q) Quit rs_install. Enter q! to quit without saving your inputs.
?) Help.

Enter a product number (1-2) or range to (de)select.
Enter menu option: [f]
```

- 7 The **Tool Customization Menu** allows you to install the Netscape Navigator 4.78 and Adobe Acrobat Reader 4.0 software provided with the Rational Suite. The default setting is set to install both products.

We recommend that you use the Netscape software provided with Rational Suite for accessing online documentation and web clients.

Note: Netscape Navigator and Adobe Acrobat Reader are installed in the `rational_dir/base/cots` directory, where `rational_dir` is the installation path for the Suite.

- 8 The **Enter Install Mode** menu allows you to choose whether you want `rs_install` to prompt you before it reinstalls the documentation for a product, or to either skip the product if it is already installed on your system or reinstall the product without confirmation.

Once you have selected an option, the documentation installation process executes without further input required.

Verifying Your Documentation Installation

It is recommended that you verify that your installation is working properly.

Note: If you did not install the version of Netscape Navigator provided with the Rational Suite, then refer to *Configuring an Existing Browser Installation* on page 78 for post-install set-up information. You need to set up your browser before testing this online documentation installation.

To verify your installation:

- 1 Test the online documentation on UNIX by running the Rational Suite DevelopmentStudio for UNIX Help executable, `rsdsu_help`. This executable launches the documentation navigation page from which the electronic documents, in PDF and HTML format, can be opened. If you have not already done so, you must set up the Rational Suite runtime environment first. (The `rs_setup` script is used to set up the environment on UNIX platforms. For more information, see *Setting up the UNIX Environment* on page 78.)

For `csh`, `tcsh`, or compatible shells, do the following:

```
% source rational_dir/rs_setup.csh
% rsdsu_help
```

For `sh`, `ksh`, `bash`, or other Bourne-compatible shells, do the following:

```
$ . rational_dir/rs_setup.ksh
$ rsdsu_help
```

Click on the PDF button for *Rational Suite Introduction (UNIX/Windows)*. Acrobat Reader opens with the Rational Suite Introduction manual.

- 2 Click on the PDF button for one of the guides listed for a point product that you installed during the online documentation installation process. This document is opened in a new window in the Acrobat Reader.
- 3 Click on the HTML button for the *Rational Suite License Request FAX Form*. A new browser window opens displaying this form.

Installing Rational Suite (Windows Components)

To install Rational products on a Windows operating system, ensure you are logged on as the local administrator, or you are logged on to an account that has Administrators group privileges.

Before you install the Rational Suite (Windows Components):

- Back up any user files. Backing up your data prior to installing any new software should be a regular practice.
- Stop all running Windows applications.
- Are you using a single UNIX server to manage licenses for both the Rational Suite (UNIX Components) and Rational Suite (Windows Components)?

You can go ahead and install the Rational Suite (Windows Components).

- Are you using a Windows server to manage licenses for the Rational Suite (Windows Components)?

You must install the license server software on the Windows server *before* you install the Rational Suite (Windows Components). See *Installing Rational License Server Software on Windows* on page 111.

The Rational Suite shipment includes two Rational Solutions for Windows CDs on which the Windows components are located. The Rational Setup Wizard included on these CDs installs the Windows components.

To install the Rational Suite (Windows Components):

Refer to the *Installing Rational Products* chapter of either the *Rational Software Desktop Products Installation Guide* or the *Rational Software Server Products Installation Guide*. In particular, read the section *Installing Rational Products from the CD*. During the installation, select the **DevelopmentStudio (Windows Components)** option from the **Product Selection** page.

Note: You can set up a silent install, and this process is detailed in the same chapter.

You will have to perform additional configuration tasks on the server products. Refer to the *Post Install Configuration for the Windows Components* on page 76 in the *After You Install* chapter.

Installing and Removing Supplementary Rational Products

This section provides information on installing the software for UNIX products that are shipped with the Rational Suite, but that are installed from CDs other than the Rational Solutions for UNIX or Rational Solutions for Windows CDs.

These are:

- Rational ClearCase LT for UNIX
- Rational ClearQuest for UNIX
- Rational Test Agent for UNIX

Installing ClearCase LT for UNIX

You can install Rational ClearCase LT after you have installed and licensed Rational Suite (UNIX Components) on the UNIX host.

The Rational ClearCase LT software is installed from the Rational ClearCase LT UNIX / Rational ClearQuest UNIX CD included in this release of Rational Suite. For instructions on how to install and remove Rational ClearCase LT, refer to the *Rational ClearCase LT Installation Guide*.

Installing ClearQuest for UNIX

You can install Rational ClearQuest either before or after installing Rational Suite (UNIX Components) on the UNIX host. If you install ClearQuest afterwards, be sure to run the `post_install` program to set up the ClearQuest location for SoDA.

The Rational ClearQuest software is installed from the Rational ClearCase LT UNIX / Rational ClearQuest UNIX CD included in this release of Rational Suite. For instructions on how to install and remove Rational ClearQuest, refer to the *Rational ClearQuest Product Family Installation Guide*.

Installing a UNIX Test Agent

If you elected to install Rational TestManager during the Rational Suite (Windows Components) install, then you need to install Rational Test Agent software on the UNIX system where test data is to be collected. Do this only after you have installed and licensed the Rational TestManager software.

The UNIX Test Agent software is installed from the Rational Test Agent CD included in this release of Rational Suite. Read the "Installing Additional Testing Software" section in the "After You Install" chapter of the *Rational Software Desktop Products Installation Guide*.

Note: The same version of Rational TestManager and Rational Test Agent must be installed on the Local and Agent computers, respectively.

Removing Rational Suite (UNIX Components)

Rational Suite includes an **uninstall** script in its config directory for the purposes of cleanly uninstalling the product software and documentation. You can uninstall an earlier release of a product or of the Rational Suite by running this script on the *rational_dir* directory in which the older product release is installed.

Warning: Manually removing the Suite directory *does not* uninstall the Suite.

Before you run **uninstall**, review the following:

- 1 If you have previously installed version 3.0.1, 3.0.3, or 3.1.0 of Rational SoDA for FrameMaker, you may choose to use the installation of FrameMaker+SGML bundled with that release. To do this, copy the entire SoDA directory to a new location and uninstall the previous version of Rational Suite. This way, you do not accidentally remove the previous version of Rational SoDA for FrameMaker when you uninstall the Suite.

Note: To optimize disk space by removing the SoDA components and keeping only the FrameMaker+SGML components, refer to Technical Application Note 17972 at the following location: <http://www.rational.com/support/>.

- 2 You must verify that your system startup script (*start_lmgrd*) uses a valid path to the Rational license daemon. (See *The License Manager* on page 94.)

Open this script file and search for the string **lmgrd**. Ensure that the path looks like this: *rational_dir/base/cots/flexlm.version/platform*

If you have set up the Rose/ClearCase integration on the server running **uninstall**, you will see a message regarding "rose" and "rose_unit" merge and compare operations. The type manager (or managers) which manage these operations for "rose" and "rose_units" will include links to this release in relation to the merge and compare operations. The messages will include instructions describing how to correct the merge and compare links that become obsolete after uninstalling this release.

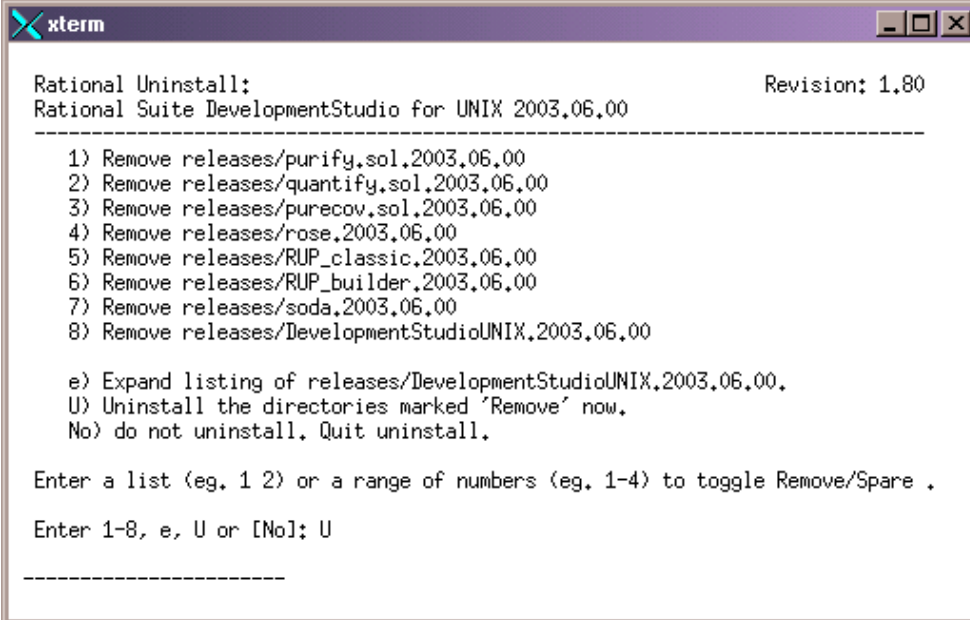
With the valid path to the Rational Suite license daemon established, you are ready to run **uninstall**.

Note: You must be the installer of the product to uninstall it.


```
% cd rational_dir/config
% uninstall
```

Running the script with no command line arguments causes it to display the list of products in the releases directory (see Figure 9). If you select a Suite, you will be given a chance to review the products in the Suite that would be uninstalled as part of the Suite uninstall. The default action is to remove all of the point-products and the Suite directory. You can, however, select one or more products in the list to be spared from the uninstall operation.

Figure 9 Menu for Uninstall of Rational Suite (UNIX Components)



```
xterm
Rational Uninstall: Revision: 1.80
Rational Suite DevelopmentStudio for UNIX 2003.06.00
-----
1) Remove releases/purify.sol.2003.06.00
2) Remove releases/quantify.sol.2003.06.00
3) Remove releases/purecov.sol.2003.06.00
4) Remove releases/rose.2003.06.00
5) Remove releases/RUP_classic.2003.06.00
6) Remove releases/RUP_builder.2003.06.00
7) Remove releases/soda.2003.06.00
8) Remove releases/DevelopmentStudioUNIX.2003.06.00

e) Expand listing of releases/DevelopmentStudioUNIX.2003.06.00.
U) Uninstall the directories marked 'Remove' now.
No) do not uninstall. Quit uninstall.

Enter a list (eg. 1 2) or a range of numbers (eg. 1-4) to toggle Remove/Spare .
Enter 1-8, e, U or [No]: U
-----
```

If you have installed more than one version of Rational Suite in the same *rational_dir* directory, the **uninstall** program will only uninstall the products for a particular Suite if that same product is not a member of another Suite. For example, if Suite 1.0 contains SoDA 3.0.0c and Purify 4.4 and Suite 2.0 contains SoDA 3.0.1 and Purify 4.4, Purify 4.4 is common to both, so it will not be uninstalled until both Suites have been uninstalled.

Note: Rational License Manager software is not removed by **uninstall**. To remove Rational licensing software, remove the corresponding hierarchy:

```
% cd rational_dir/base/cots
% rm -fr flexlm.7.0f/platform
```

where *platform* is either *hppa_hpx* or *sun4_solaris2*.

Removing Rational Suite Online Documentation Components

To remove only the installed online documentation from a UNIX host, the simplest method is to use the UNIX remove command to delete the docs hierarchy.

```
% cd rational_dir/releases/DevelopmentStudioUNIX.2003.06.00
% rm -fr docs
```

Similarly, to remove Netscape or Acrobat, remove the corresponding hierarchy:

```
% cd rational_dir/base/cots
% rm -fr netscape.4.78 acrobat.4.0
```

Alternatively, you can use the **uninstall** program. Expand the **DevelopmentStudioUNIX 2003.06.00** listing, and then toggle all entries to **Spare** except for Netscape, Acrobat, or documentation items you wish to have removed, which should be set to **Remove**.

Removing Rational Suite (Windows Components)

Use this procedure to remove the Rational Suite (Windows Components).

- 1 Click **Settings > Control Panel**.
- 2 Double-click **Add/Remove Programs**.
- 3 To uninstall the software:
 - for Rational Suite DevelopmentStudio for UNIX (Windows Components), click **Rational Suite DevelopmentStudio for UNIX** and click **Add/Remove**.
 - for Rational Suite DevelopmentStudio RealTime for UNIX (Windows Components), click **Rational Suite DevelopmentStudio RealTime for UNIX** and click **Add/Remove**.

If you have removed the Rational Suite (Windows Components) and plan to re-install the components or install a new version, we recommend that you reboot your system after you have removed the software. After the reboot, proceed with installation.

The Rational Software setup program may install Microsoft Shared components into the Windows 9x System, and Windows NT System32 directories. These Microsoft components are not removed when you remove the Rational Suite (Windows Components) because other programs may use these files.

In addition, a minimal number of files will remain under the folder *drive:\Program Files\Rational*. This is intentional so that removing the software does not delete any user files that you may have created while using the products. You can delete these files manually if you want to remove them from your system. Do *not* delete the entire *\Program Files\Rational* folder itself unless you are certain that you have uninstalled all Rational products for Windows.

This chapter provides an overview of post-install tasks. The following topics are included:

- *Post Install Configuration for the UNIX Components* on page 68
 - *Configuring Rational Purify, PureCoverage, and Quantify* on page 68
 - *Configuring Rational Rose for UNIX* on page 70
 - *Configuring Rational SoDA for FrameMaker* on page 72
 - *Configuring RUP for UNIX Using the RUP Builder* on page 75
 - *Reconfiguring Rational License Manager (UNIX)* on page 75
- *Post Install Configuration for the Windows Components* on page 76
 - *Setting Up The License* on page 76
 - *Configuring Rational RequisiteWeb and Rational ClearQuest Web Clients* on page 77
 - *Configuring ClearCase LT Server and Web Client* on page 77
 - *Setting up the Rational Administrator* on page 77
- *Post Install Configuration for the Online Documentation* on page 78
- *Launching the Products and the Online Documentation* on page 78
 - *Launching the Products on UNIX* on page 78
 - *Launching a Windows Component* on page 80
 - *Viewing the Online Documentation* on page 80

Perform only those tasks that are appropriate to the selection of Rational Suite components you installed during Rational Suite installation.

Note: The term *rational_dir* is used throughout this chapter to refer to the directory under which Rational Suite software has been installed.

Post Install Configuration for the UNIX Components

This section guides you through some of the post-install steps required for the primary UNIX components: Rational Purify, Rational PureCoverage, Rational Quantify, Rational Rose, and the Rational Unified Process (RUP).

Note: The product-specific post-install scripts for these products are listed in Table 11, Rational Product Post-install Scripts.

Configuring Rational Purify, PureCoverage, and Quantify

This section explains how to configure Rational Purify, PureCoverage, and Quantify after you have installed the three products on a UNIX system.

The configuration tasks include:

- *Installing on a Read-Only File System* on page 68
- *Making the Manual Pages Available* on page 69
- *Making the Product Available to All Users* on page 69, including:

Installing on a Read-Only File System

The `rs_install` program guides you through the process of selecting a shared directory that is mounted read-write on client systems and linking the cache directory to this publicly writable directory. However, if you install Rational Purify, PureCoverage, or Quantify on a file system that is mounted read-only by client systems, you must create symbolic links to a writable file system.

When There is No Writable File System

If there is no writable shared directory mounted on client systems, have all users make a cache subdirectory in their home directory and set the product's `-cache-dir` option to this directory. For example

```
% mkdir $HOME/cache
% echo $PUREOPTIONS
```

If the `PUREOPTIONS` environment variable is already set, specify the `-cache-dir` option using one of the methods below.

For `csh`, `tcsh`, or compatible shells, do the following:

```
% setenv PUREOPTIONS "-cache-dir=$HOME/cache $PUREOPTIONS"
```

For `sh`, `ksh`, `bash`, or other Bourne-compatible shells, do the following:

```
$ PUREOPTIONS="-cache-dir=$HOME/cache $PUREOPTIONS";
$ export PUREOPTIONS
```

If the PUREOPTIONS environment variable is *not* set, define it using one of the methods below.

For csh, tcsh, or compatible shells, do the following:

```
% setenv PUREOPTIONS "-cache-dir=$HOME/cache"
```

For sh, ksh, bash, or other Bourne-compatible shells, do the following:

```
$ PUREOPTIONS="-cache-dir=$HOME/cache"; export PUREOPTIONS
```

Add this same specification to your local or central .cshrc file, or its equivalent.

Making the Manual Pages Available

The `rs_install` program installs the product manual pages in *producthome*/man. To make them available, do one of the following:

- Set your MANPATH environment variable to include *producthome*/man (where *producthome* is one of purify, quantify, or purecov).
- Copy the manual pages for the product into your man directory. If necessary, log in as *root* to do this.
- Running `rs_setup.csh` or `rs_setup.ksh` adds the locations of these product's manual pages to the MANPATH environment variable automatically.

Making the Product Available to All Users

To make Rational Purify, PureCoverage, and Quantify available to all users, create a symbolic link to *producthome*/product (where *producthome* is one of purify, quantify, or purecov) from a directory such as /usr/local/bin. Make sure this is a symbolic link, not a copy or a hard link.

For example:

```
% rm /usr/local/bin/purify
% ln -s producthome/purify /usr/local/bin
```

Repeat this procedure for each product you install.

Note: As an alternative, you can add the *producthome/product* pathname to each user's PATH environment variable, or reference the full path name in your makefile (`rs_setup.csh` and `rs_setup.ksh` will do this for you).

Making Rational Quantify Scripts Available

To make Rational Quantify scripts available, you need to create symbolic links to `qv` and to the `qx` script files:

```
% rm /usr/local/bin/qv
% rm -i /usr/local/bin/qx*
```

```
% ln -s quantifyhome/qv /usr/local/bin
% ln -s quantifyhome/qx* /usr/local/bin
```

For more information on the **qx** script, see the *Quantify online help*.

Making Rational PureCoverage Scripts Available

To make Rational PureCoverage scripts available, you need to create symbolic links to the **pc_*** script files:

```
% rm -i /usr/local/bin/pc_*
% ln -s purecovhome/scripts/pc_* /usr/local/bin
```

For more information on the **pc_*** scripts, see the *PureCoverage online help*.

Making Debugger Scripts Available on HP-UX

On HP-UX, Rational Purify, PureCoverage, and Quantify each include three product-specific scripts that enable you to start instrumented programs under a debugger. You need to create symbolic links to these scripts.

For example, for Rational Purify:

```
% rm /usr/local/bin/purify_dde
% rm /usr/local/bin/purify_xdb
% rm /usr/local/bin/purify_softdebug
% ln -s purifyhome/purify_dde /usr/local/bin
% ln -s purifyhome/purify_xdb /usr/local/bin
% ln -s purifyhome/purify_softdebug /usr/local/bin
```

For Rational PureCoverage and Rational Quantify, create the same symbolic links, substituting **purecov** or **quantify** for **purify**.

Configuring Rational Rose for UNIX

This section details Rational Rose for UNIX configuration, performed after installation. You must complete these steps before running Rose on a UNIX system.

The following topics are covered in this section:

- *Rose for UNIX Configuration Files* on page 71
- *Rose.ini File Replaced By rose.reg* on page 71
- *Configuring Your Printer* on page 71
- *Initial Runtime Instructions When Upgrading* on page 71
- *Installing and Using Converted Fonts Provided in this Release* on page 71
- *Configuring the Rose/ClearCase Integration* on page 71

Rose for UNIX Configuration Files

Executing *rational_dir/releases/DevelopmentStudioUNIX.2003.06.00/platform/bin/rose* (where *platform* is **hppa_hpx** or **sun4_solaris2**) will run the Rose configuration file **config.sh** before bringing up Rose. The configuration file sets environment information such as the Rose home directory and location of the license file.

Rose.ini File Replaced By rose.reg

Any settings previously in the Rose.ini file are now in the registry file, rose.reg. This new registry file is located in the *rational_dir/releases/rose.2003.06.00/registry* directory of the release. The settings in this file are entered in your registry, after running **rose_cleanup** and then **rose**. Any changes made to the release rose.reg file will apply to all users running rose. If you wish to make changes specific for your environment, a rose.reg.template file is available in *rational_dir/releases/rose.2003.06.00/registry*. Copy this file to your \$HOME directory and name it \$USER.reg. Edit this file with the settings you prefer, run rose_cleanup and then rose. Rose will automatically register your \$HOME/\$USER.reg file and your settings will be available in your Rose session.

Configuring Your Printer

Please refer directly to the *Rational Rose Release Notes (UNIX)* for details. This is a new process introduced in this release, for which information was not available to the *Rational Suite for UNIX Installation Guide* at the time of printing.

Initial Runtime Instructions When Upgrading

Any user running an earlier version of Rose, should run *rational_dir/releases/DevelopmentStudioUNIX.2003.06.00/platform/bin/rose_cleanup* (where *platform* is **hppa_hpx** or **sun4_solaris2**).

It is only necessary to perform this step once – before running Rose.

To run Rose, see *Launching the Products on UNIX* on page 78.

Installing and Using Converted Fonts Provided in this Release

Rose includes fonts that are compatible and may be used on both personal computers and UNIX displays. For more information on using these fonts, please see the *Rational Rose Release Notes*.

Configuring the Rose/ClearCase Integration

If you have an existing installation of Rational ClearCase and plan on using it with a new installation of Rational Rose (Rational Suite DevelopmentStudio only), you need

to set up the Rose/ClearCase integration by following the directions in the Rose on-line help topic **Configuring the Rose UNIX/Linux ClearCase Integration**.

Before using the Rose/ClearCase integration with this release, review the following file: *rational_dir/releases/rose.2003.06.00/addins/clearcase/README*

Configuring Rational SoDA for FrameMaker

This section describes Rational SoDA configuration options available during installation, and for reconfiguration purposes after installation.

SoDA Components

During installation, you will have the option of choosing which SoDA components to load. The following describes these components.

Required Components

You must load the two components that are required for all installations:

- **SoDA Common Component**, containing document templates, X resources, **apclients** file updates, and so on
- **SoDA Components for platform**, the platform-specific executables

The SoDA installation process is not optimized for heterogeneous networks (more than one UNIX platform). If you need to install more than one version of SoDA, contact Rational Technical Support.

Optional Components

There are additional components that you may need to load, depending on the needs of your project:

- **Apex Domain for platform**, containing source-domain definitions, executables, and so on for integrating SoDA and Rational Apex. You must load it to use SoDA with Apex.
- **TestMate Domain for platform**, containing source-domain definitions, executables, and so on for integrating SoDA and TestMate. You must load it to use SoDA with TestMate.
- **Rose Domain for platform**, containing source-domain definitions, executables, and so on for integrating SoDA and Rational Rose. You must load it to use SoDA with Rose.

- **RoseRT Domain for *platform***, containing source-domain definitions, executables, and so on for integrating SoDA and Rational RoseRT. You must load it to use SoDA with Rose RealTime.
- **ClearCase Domain for *platform***, containing source-domain definitions, executables, and so on for integrating SoDA and Rational ClearCase. You must load it to use SoDA with ClearCase.
- **ClearQuest Domain for *platform***, containing source-domain definitions, executables, and so on for integrating SoDA and Rational ClearQuest. You must load it to use SoDA with ClearQuest.
- **SoDA Training**, a platform-independent tar file. Load it only if you have SoDA users who are planning to attend Rational's SoDA training class. (Further instructions on completing the installation of the **SoDA Training** component are provided with the training material.)
- **SoDA Demo**, a platform-independent component for demonstrating SoDA features. It is intended primarily for use by Rational personnel. Unless requested by your Rational representative, you do not need to load this component.

SoDA Control Options

If you have Rational Apex installed, you will be prompted during installation to provide a control type for use during checkin of a FrameMaker+SGML file. These options are only applicable if you are loading the **Apex Domain** component. Here are the two options for SoDA control:

- *Storage* in binary format or MIF (Maker Interchange Format) upon checkin.
- *Document locking* (using Frame's View Only format) upon checkin and document unlocking upon checkout.

Storage Formats

You can specify the way in which versions of controlled documents are stored in the CMVC database. The two choices are:

- *Binary format*, which is the normal format of FrameMaker+SGML documents.
- This compact format requires less time for FrameMaker+SGML to save and open. CMVC does *not*, however, store versions of binary files efficiently. Each version is stored as a full copy of the binary file. Over time, as many new versions are checked in, the CMVC database will grow very large even if each version contains only minor changes.
- *MIF*, FrameMaker's data interchange format, is an ASCII representation that fully describes the contents of FrameMaker+SGML documents.

MIF can be several times larger than the equivalent binary format and requires more time for FrameMaker+SGML to save and open (because FrameMaker+SGML must convert the MIF from/to binary). Also, because MIF files are often quite large, calculating the differences between versions can take some time, thereby slowing the checkin.

CMVC does, however, store versions of ASCII text files very efficiently. Only one version is stored as a full copy of the original file. All other versions are stored as differentials. Over time, as many new versions are checked in, the CMVC database does not grow too large if most versions contain only minor changes.

Document Locking

When documents are controlled and checked in, their UNIX file permissions are set to be read-only (**r-r-r--**). However, it is not possible to determine if a document is read-only from within FrameMaker+SGML.

You can have SoDA lock documents when they are checked in and unlock them when they are checked out. When a document is locked (in FrameMaker+SGML View Only format), it is apparent in FrameMaker+SGML that the document is not editable—you cannot select text or type in the document until it is checked out and unlocked.

Configuring SoDA for use with Other Rational Products

During the **post_install** phase, you may be asked if you want to use SoDA with other Rational products. The notes below describe some of these configuration options.

Refer to the *Rational SoDA for Frame Release Notes* for further information about using SoDA with other Rational products.

Rational Rose

During installation you may be asked if you want to use SoDA with Rational Rose. If you answer **yes**, you must also provide the location of the Rose installation. The install process configures SoDA to use the version of Rose you have specified.

Rational Rose RealTime

During installation you may be asked if you want to use SoDA with Rational Rose RealTime. If you answer **yes**, you must also provide the location of your installation of Rational Rose RealTime installation. The install process automatically configures SoDA to this version of Rational Rose RealTime.

Rational Apex

If you are installing SoDA for use with Rational Apex, and if you would like **apexinit** to automatically start SoDA for all Apex users, use your preferred text editor to adjust the **soda.start** script in the *rational_dir/releases/soda.2003.06.00/share/bin* directory. Uncomment the appropriate line as indicated by the instructions in the file.

Normally, it is better *not* to make this adjustment unless all Apex users will also be regular SoDA users. Generally, only some Apex users are regular SoDA users.

Rational ClearQuest

During installation you may be asked if you want to use SoDA with Rational ClearQuest for UNIX. If you answer **yes**, you must also provide the location of your ClearQuest installation. The install process will automatically configure SoDA to use the version of Rational ClearQuest you have specified.

Reconfiguring SoDA

Sometimes it is necessary to reconfigure SoDA after installation, for example to specify a new Rose installation, or if the SoDA installation is moved. Configuration of SoDA is performed during the **post_install** phase of **rs_install**. You may execute the SoDA post-install by running the SoDA post-install script (see Table 11, Rational Product Post-install Scripts).

Configuring RUP for UNIX Using the RUP Builder

The RUP software installed from the Rational Solutions for UNIX CD now includes only the classic RUP. To uniquely configure the RUP for your project, use the RUP Builder.

Running RUP Builder

Once you have installed RUP and RUP Builder software, you can execute the RUP Builder script

```
$ cd rational_dir/releases/RUP_builder.2003.06.00
$ rupbuilder.sh
```

RUP Builder first opens a dialog window from which you can select a RUP configuration template. From here, refer to the RUP Builder's on-line Help for details on configuring and publishing your unique instance of the RUP.

Reconfiguring Rational License Manager (UNIX)

Licensing may also be reconfigured after install by using the **license_setup** and **license_check** tools, described in the licensing chapters of this manual.

Post Install Configuration for the Windows Components

Setting Up The License

Before you can use any of the Rational Suite (Windows Components), you need to do one of the following:

- Point to a License Server. (This can be either a UNIX or a Windows system.)
- Import a license file.

Do this if you plan to use the Windows system as both a license server and application server.

- Enter your temporary or evaluation license key information.

Do this if you are waiting for your permanent license and you want to get started right away, or if you are evaluating the product.

To set up your Rational Suite (Windows Components) license:

- 1 The Rational License Key Administrator (LKAD) should automatically start when you restart your system. If not, click the LKAD Wizard button (the button with the Wizard's hat), or click **Start > Programs > Rational Suite DevelopmentStudio for UNIX > License Key Administrator**.
- 2 Do one of the following:
 - If you already have a license server configured, click **Point to a Rational License Server to get my licenses**. Indicate whether you are using a single license server or a redundant server setup. Enter the server's hostname and port number (optional). Click **Finish**.
 - If you want to use this system as the license server, click **Import a Rational License File**. Locate the license file (file with a .upd extension) and click **Open**. Click **Finish**.
 - If you want to get started before you receive your permanent license key, or if you want to evaluate the product, choose **Enter a Temporary or Evaluation License Key**. (You need your license key certificate to proceed.) Click **Floating** for the License Key type. Click the appropriate product from the drop-down list: **Rational Suite DevelopmentStudio for UNIX (Windows Components)** or **Rational Suite DevelopmentStudio RealTime for UNIX (Windows Components)**. Enter the information provided by your license key certificate. Click **Finish**.
- 3 Check that your Rational Suite (Windows Components) are licensed correctly by starting the products from the **Start** menu, **Start > Program Files > Rational Suite DevelopmentStudio for UNIX**.

Configuring Rational RequisiteWeb and Rational ClearQuest Web Clients

To use the Requisite Web interface, you must first configure RequisitePro database and web servers on Windows. (For details, read the *After Install: Configuring RequisitePro Database and Web Server* chapter of the *Rational Software Server Products Installation Guide*.) Once you have done this, you can give UNIX users access through their browser by pointing to the Rational RequisiteWeb Server using the **web_setup** program.

To use the ClearQuest Web interface you must configure ClearQuest Web on a Windows IIS Web server. (For details, read the *After Install: Configuring ClearQuest Web* chapter of the *Rational Software Server Products Installation Guide*.) Once you have done this, you can give UNIX users access through their browser by pointing to the Rational ClearQuest Web Server using **web_setup**.

Run the **web_setup** command to define the URLs for the Rational RequisiteWeb and Rational ClearQuest Web Servers. The **web_setup** command allows you to run a subset of **rs_install** and includes the prompts for defining the location of these servers. The server information is recorded in the **rpweb** and **cqweb** scripts. All three scripts are found in your UNIX path if you have sourced the Suite environment set-up script.

Configuring ClearCase LT Server and Web Client

Before using ClearCase LT (either through the native UNIX client or through the web interface), you must configure the ClearCase LT server. Also, in order to use the ClearCase LT web interface, you must configure the ClearCase web interface. (For details, read the *After Install: Configuring ClearCase LT Server and ClearCase Web* chapter of the *Rational Software Server Products Installation Guide*.)

If you choose to use the ClearCase web interface instead of using a native ClearCase LT UNIX client, be sure to define your ClearCase LT Web client startup command alias on UNIX to include the full path to your installation of Netscape Navigator 7. Your global PATH environment variable must continue to point to the Netscape Navigator 4.78 installation for use by other UNIX products and documentation installed from the Rational Suite.

Setting up the Rational Administrator

If you have installed Rational TestManager, Requisite Pro, or ClearQuest, then Rational Administrator is also installed as it is required for configuration of these products. The Rational Administrator allows you to manage large data stores.

For more information, see the *Rational Software Desktop Products Installation Guide*.

Post Install Configuration for the Online Documentation

Configuring an Existing Browser Installation

During installation of the online documentation, it is possible to install Netscape Navigator software shipped with the Rational Suite. This software is configured to automatically locate the online documentation navigation page, and to automatically launch the Adobe Acrobat Reader executable when a PDF link is activated.

If you did not install the Netscape Navigator software provided on the Rational Solutions for UNIX Online Documentation CD, then you must configure your existing browser to work efficiently with the installed documentation files.

- 1 You must configure your own browser to launch the Acrobat Reader. Alternatively, users of the online documentation will have to access the PDF files individually using Adobe's **acroread** executable.
- 2 You should point your browser to the following location to access an HTML page that contains links to all documents (HTML and PDF):

rational_dir/releases/DevelopmentStudioUNIX.2003.06.00/docs/index.html

Launching the Products and the Online Documentation

Once the UNIX and Windows components are installed and configured, the products can be run from their install areas. This section provides simple instructions for executing the various products and the on-line documentation navigation page.

Launching the Products on UNIX

To run any of the products available in the Rational Suite on UNIX, you must first set up the UNIX environment. You can then launch any of the UNIX products natively or open a UNIX client of the Windows web server components.

Setting up the UNIX Environment

Installation of the Rational Suite (UNIX Components) creates an environment setup script. Execute this script from the command line to set up the UNIX environment in which the installed UNIX products are launched. These can be run as part of a common user logon, and is a convenient point for additional customization of the environment.

For csh, tcsh, or compatible shells, source the following from the .cshrc file:

```
% source rational_dir/rs_setup.csh
```

For sh, ksh, bash, and other Bourne-compatible shells, source the following from the .profile file:

```
$ . rational_dir/rs_setup.ksh
```

Running a UNIX Component

Before starting any of the UNIX products, execute the environment set-up script as described above. Next, using the appropriate startup command listed in Table 12, run the product from the command line.

Table 12 Startup Commands for Rational Suite (UNIX Components)

Product	Start command
Rational ClearCase LT (native UNIX client)	% cleartool See <i>Rational ClearCase LT Installation Guide</i> for information on environment set-up and the start command options.
Rational ClearQuest (native UNIX client)	% clearquest See <i>Rational ClearQuest Product Family Installation Guide</i> for information on environment set-up and start options.
Rational Purify Rational PureCoverage Rational Quantify	% purify % purecov % quantify See <i>Installing and Getting Started: Rational PurifyPlus, Purify, PureCoverage, Quantify</i> for a full description of start command options.
Rational Rose	% rose (to start Rose) % modelint (to start Rose Model Integrator) % analyzer (to start Rose C++ Analyzer)
Rational Rose RealTime	% RoseRT (to start Rose RealTime) % modelintRT (to start Rose RealTime Model Integrator) % analyzer (to start Rose C++ Analyzer)
Rational SoDA for Frame	% soda
Rational Unified Process (Classic RUP)	% viewrup

Running a Web Client on UNIX

One method of launching a web client on UNIX is to invoke Netscape Navigator and point it at the product's web interface URL with the following command.

```
% netscape -install http://product_web_url
```

The Rational Suite for UNIX also provides convenient web client start-up scripts. Before launching a UNIX web client using these scripts, execute the Suite UNIX environment set-up script. You may want to ensure that these scripts were configured after installation using the web set-up instructions in *Configuring Rational RequisiteWeb and Rational ClearQuest Web Clients* on page 77.

- To launch ClearQuest on UNIX using the web interface, run the `cqweb` script.
- To launch RequisitePro on UNIX using the web interface, run the `rpweb` script.

Launching a Windows Component

Launch installed Rational Suite Windows component software on a Windows machine from the Start Menu under **Start > Programs > Rational Software**. For further details, refer to the online user's guide for each of the individual Windows products.

Viewing the Online Documentation

Installation of the online documentation files (see *Installing the Rational Suite Online Documentation* on page 58) creates a script that can be used to launch the online documentation viewer from the install area.

The Help launch script, `rsdsu_help`, opens a central navigation page in your web browser that provides access to all the electronic documentation provided with the Rational Suite.

To launch the online documentation navigation page:

For `csh`, `tcsh`, or compatible shells, do the following:

```
% source rational_dir/rs_setup.csh
% rsdsu_help
```

For `sh`, `ksh`, `bash`, or other Bourne-compatible shells, do the following:

```
$ . rational_dir/rs_setup.ksh
$ rsdsu_help
```

To open PDF and HTML documents:

From this navigation page, click on the PDF or HTML button listed to the right of a document title to open the document.

Warning: If any of the documents were not installed as part of the online documentation installation, the PDF and HTML buttons will be active for these documents, but selecting them will result in a file open error.

Licensing

Understanding Rational Suite Licensing

5

This chapter describes the following topics related to Rational software licensing:

- *The Rational Common Licensing Model* on page 83
- *Licensing Options* on page 83
- *License Usage Order* on page 86
- *Acquiring License Keys* on page 86
- *License Server Configurations* on page 90

The Rational Common Licensing Model

For consistent product licensing, the Rational Suite uses Rational Common Licensing, which has as its backbone a software-based license management tool from GLOBEtrouter Inc. called FLEXlm. FLEXlm provides users with a powerful and flexible mechanism for managing licensing. This allows vendors such as Rational Software to build a customized licensing model by using the FLEXlm features that best meet their business needs.

Licensing Options

A Rational license file can contain multiple entries, each of which is a license key. A Rational Suite for UNIX license key represents one of four license combinations:

- floating suite license
- node-locked suite license
- floating point-product license
- node-locked point-product license

Also, each of these combinations is either a permanent or temporary license, as determined by the type of license key.

Types of Licenses

A Rational license is either node-locked or floating, and provides access to either an individual Rational point product or to a suite of Rational products.

This guide deals primarily with the use of Rational Suite licenses. For information on the use of point product licenses for licensing UNIX components in the Rational Suite for UNIX, please consult the point-product installation guides. For information on the use of point product licenses for licensing Windows components in the Rational Suite for UNIX, please consult the *Rational Software Desktop Products Installation Guide* and *Rational Software Server Products Installation Guide*.

Node-Locked Versus Floating Licenses

Node-locked licenses are issued for a specific system and can only be used to run Rational products on that machine. Because the user must be logged directly into any machine where a node-locked license is in effect, there is no need to have a license server process running to manage node-locked licenses. A Rational license server controls use of the floating licenses.

Floating licenses can be shared by multiple users across multiple systems. Floating licenses are generated for a single license server machine, and different users can claim these licenses to run Rational products on their own machines. Floating licenses allow anyone on your network to use Rational products as long as there is an unused license available. Because they are accessed via TCP, floating licenses must be managed through a license server.

The table below lists the types of licenses available for the various components in conjunction with your choice of Windows or UNIX license server.

Server Platform	Node-locked license supported?	Floating license supported?
UNIX	UNIX components only	UNIX and Windows components
Windows	Windows components only (UNIX components not served by Windows server)	UNIX and Windows components

Suite Versus Point-Product Licenses

A Rational license key indicates whether it enables a Rational Suite license, such as Rational Suite DevelopmentStudio, or a point-product license, such as Rational Rose.

A Rational Suite license key lets you run all of the products contained within the Rational Suite concurrently. It causes the check-out of a single floating or node-locked license.

Any add-on Rational product (in other words, a Rational product not delivered with the Suite), must use its own point-product license key.

Types of License Keys

The license key type indicates the timeframe for which your license is enabled, and is either permanent or temporary. All of the license types listed above can be permanent or temporary keys. When you register Rational products to specific systems in AccountLink, Rational generates license keys and sends you an e-mail message with these license keys in a license file.

Permanent Keys

The permanent keys let you use the Rational products for an indefinite period of time. The process of ordering and installing permanent licenses is the same as that for a temporary term license key.

Temporary Keys

To use Rational products for an evaluation period or if you expect a delay in receiving your permanent key, you can install the temporary license key provided in your Rational License Key Certificate.

Temporary keys are never generated for a specific system, and enable either floating or node-locked licenses. Because Rational has not generated the temporary key for a specific system, you can use it on any system until the specified expiration date.

Term

Rational assigns an expiration date to your license if your company has negotiated a Term License Agreement (TLA). Technically, TLA keys are not permanent, but the process of ordering and installing TLA licenses is the same as that for a permanent license.

TLA keys are treated very much like Permanent Keys in Rational licensing.

Emergency or Evaluation

Emergency and evaluation keys are temporary license keys issued for a predefined amount of time. They are generally issued by Rational Licensing Support primarily for the purpose of emergency short-term usage or product evaluation.

License Usage Order

A Rational product, whether it is installed individually or as part of a Rational Suite, requests licenses in this order, by default:

- 1 Node-locked before floating license
- 2 Suite license before point-product license

A node-locked license is requested before a floating license, and then for each floating or node-locked license, a Suite license is requested before a point-product license. For example, Rational Purify is sold as part of a Rational Suite and as a stand-alone product. It will request the Rational Suite license before it requests a Rational Purify license.

If you would like to change how Rational products use Suite and point-product licenses in your installation, see *Customizing License Usage Order* on page 96.

Exceptions

Rational RequisiteWeb and ClearQuest Web

Unlike other Rational products, Rational RequisiteWeb and Rational ClearQuest Web clients request a point-product license first. If no point-product license is available, then a Suite license is requested.

Acquiring License Keys

The Rational License Key Certificate

To get permanent or TLA license keys, you need to supply information from your Rational License Key Certificate. This certificate is enclosed in a large green envelope in your product shipment. The information, especially the Rational Account Number, on this certificate verifies that your company has purchased licenses to run Rational products.

If You Have an Existing Rational License Key

Upgrading Licenses

If you are upgrading from an earlier version of a Rational Suite or point product, you can reuse your current Rational Suite and point-product license keys.

Returning or Replacing License Keys

You may need to replace an old system or decide another system should act as the new Rational license server. Because permanent license keys are tied to a system's host ID, Rational products will not work on another system until you import new license keys that are tied to the new system's host ID.

To get your new license key, you need to “return” the existing license key back to your Rational account and then order a license key for the other system.

When you return a license key, you do not physically give the license key back to Rational. Instead, the return transaction updates Rational's records to indicate that you are no longer using the software on that system. This adjusts the count of registered products in your account and allows you to get the license key for the other system.

In accordance with the Legal Agreement provided on AccountLink, you have 30 days to shut down the license server that corresponds to the server identified in the returned license file. If you have a license file that contains more than one license and you are returning only one of those licenses, remove the entry for the license that you are returning. When you have finished editing the file, use the **lmreread** command to reread the license file and restart the vendor daemon. For more information about licensing commands, see *License Manager Commands* on page 94.

Converting a Temporary License to a Permanent License

If you initially used a temporary license (evaluation or start-up) to install Rational Suite, you can convert your license to a permanent license by using the **license_setup** command. The **license_setup** command allows you to run a subset of the install script, **rs_install**. The **license_setup** command allows you to set up license options and run the license check sequence.

You may also do this by running **rs_install**; however, using **license_setup** will save you time as there is no need to run through a full product installation or any of the post product installation setup.

You need to have a permanent or TLA license before you start. See *Requesting License Keys* on page 88.

Adding Point Products to Licenses

If you are adding one or more new point products to your system, you have to request a new license file that includes the license key for each new point product. You cannot use the Suite license for individual point product installations.

Requesting License Keys

You can request licenses through one of three mechanisms:

- AccountLink
- By fax
- By phone

Note that Rational prefers that you use AccountLink if at all possible. The other two mechanisms are simply supported as a back-up in case AccountLink is, for any reason, inaccessible.

Requesting Licenses through AccountLink

Rational AccountLink (<http://www.rational.com/accountlink>) is a Web tool that you can use to manage your permanent or Term License Agreement license keys.

To use AccountLink, you need the License Key Certificate to order and install your license keys. AccountLink's interface offers three license transactions:

- Get License Key(s)
- Return License Key(s)
- Request a Copy of a License File for a Host

With these three transactions, you can order and return license keys for Windows and UNIX products from one or more Rational accounts.

Note: AccountLink does not support emergency or evaluation license key transactions. To obtain this type of temporary key, contact Rational Licensing Support (see *Contacting Rational Licensing Support* on page 17).

AccountLink requires you to register your Rational software to specific systems using the system's host ID or ethernet address. You can register:

- Rational Windows or UNIX products that will be served from a Rational license server. You will receive a UNIX license for the UNIX products, and an additional license for the Windows products.
- Single or redundant Rational license servers on Windows or UNIX systems.
- Remote Windows or UNIX systems; you do not need to sit at the system for which you are requesting license keys.

If you are not at the computer for which you are requesting license keys, you must have the following information available: Hostname and Host ID. You can download a tool from AccountLink that provides this information automatically for you.

Alternatively, you can run `rs_hostinfo` directly from the CD to get the host information. This applies to UNIX host information only. To obtain information about a Windows host, you can use either the download tool or the LKAD. If you use the LKAD, select **License Keys > Host Data** from the main menu.

Note: If you plan to use any of the Rational Suite for UNIX (Windows Components), and you want to have these Windows products served by a Windows license server, then you must make two separate requests: one for a license for the UNIX Components and a second for the Windows Components license.

Receiving and Importing License Keys from AccountLink

After you register your Rational products to a specific system with AccountLink, Rational generates a license key file that contains the license key. The file is sent in an e-mail message to the contact e-mail address that you designate in AccountLink's License Contact page.

You need to save the file to a known directory location as you will need to provide this information when you install the Rational software.

Note: If AccountLink is unavailable, see *Requesting License Keys by Fax* on page 89 or *Requesting License Keys by Phone* on page 90.

Requesting License Keys by Fax

This section summarizes the steps for getting a permanent license key by fax when AccountLink is unavailable. The preferred method, however, is that you request your license keys on-line using AccountLink (www.rational.com/accountlink).

- 1 Find your License Key Certificate in your Rational product shipment.
- 2 Print the license request form.

The documentation browser can be used directly from the online documentation CD or from the installed product area. To view the form directly from the CD, run the command `rs_help` from the CD root directory. To open the form from the installed product documentation area, run the command `rsdsu_help`. The **Rational Suite License Request FAX Form** is an HTML file that can be opened as the final entry under the Rational Suite section.

- 3 Use the License Key Certificate to fill out the form. Make sure that the contact, Rational account number, product, licensing, and host information are correct. Any errors will cause delays in receiving your license keys.

Note: If you are requesting a node-locked license, be sure to select **NodeLocked** and not **NodeLocked UNIX**. **NodeLocked UNIX** does not apply to Rational Suite.

- 4 Send the fax request to Rational Licensing Support. See *Contacting Rational Licensing Support* on page 17 for fax numbers.

If you request a permanent license key by fax and you have specified an e-mail address in your contact information, you will receive a license file through e-mail. You can copy the permanent license file from an e-mail enabled system and install it on a system that is not e-mail enabled.

Requesting License Keys by Phone

If you cannot provide an e-mail address, contact Rational Licensing Support by telephone. See *Contacting Rational Licensing Support* on page 17 for the phone numbers.

License Server Configurations

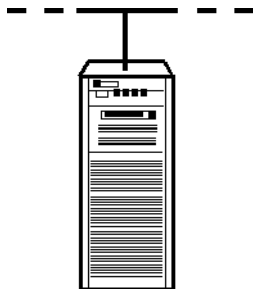
Rational Suite supports three license server configurations:

- Single server configuration
- Two server configuration
- Redundant server configuration

Single Server Configuration

As shown in Figure 10, the single server configuration uses a single UNIX server to manage licenses for both UNIX Components and Windows Components. This is the recommended configuration because it is the simplest to manage.

Figure 10 Single License Server Configuration

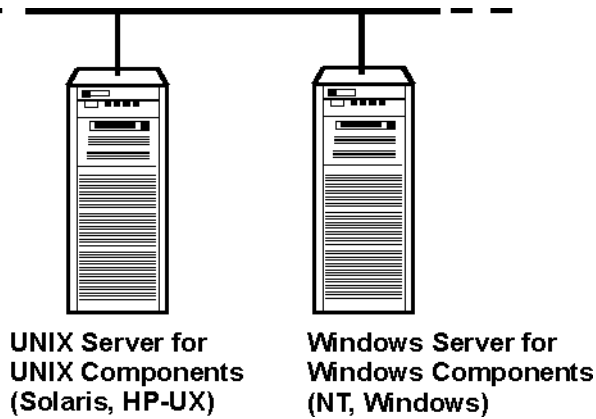


**UNIX Server for
UNIX Components and
Windows Components
(Solaris, HP-UX)**

Two Server Configuration

As shown in Figure 11, a two-server configuration uses a UNIX server to manage licenses for UNIX Components and a Windows server to manage licenses for the Windows Components. Information on installing the Windows license server is provided in *Installing the Rational License Server on a Windows Server* on page 113.

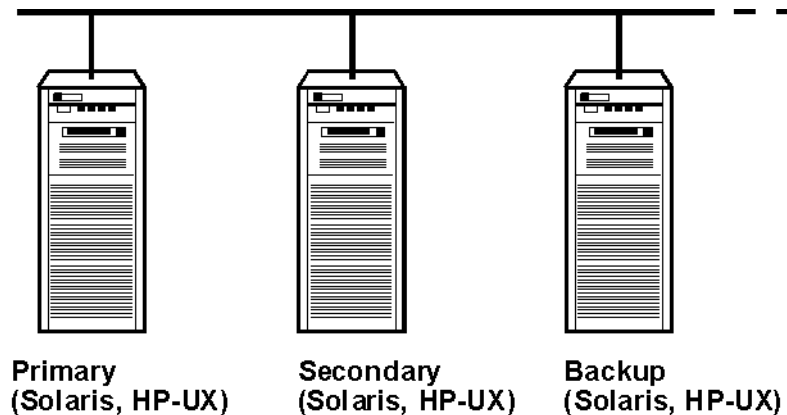
Figure 11 Two Server Configuration



Redundant Server Configuration

As shown in Figure 12, a redundant server configuration uses three UNIX servers to manage licenses in a fault-tolerant configuration known as redundancy. The redundant server configuration is described in *Setting up Redundant UNIX License Servers* on page 103.

Figure 12 Redundant License Server Configuration



This chapter describes the following topics related to administering Rational software licensing.

- *How Licenses Work* on page 93
- *The License Manager* on page 94
- *License Manager Commands* on page 94
- *The License File* on page 95
- *Customizing License Usage Order* on page 96
- *Licensing Diagnostic Messages* on page 100
- *Frequently Asked Questions* on page 101
- *For Further Licensing Information* on page 102

While some of the topics are platform-independent, the activities in this chapter are focussed on UNIX license servers. For setting up a Windows license server, see *Installing Rational License Server Software on Windows* on page 111.

How Licenses Work

Licenses are managed by a *license manager* that runs on a *license server*. The license manager monitors license access, simultaneous usage, idle time, and so on. This license manager is the Rational License Manager and it uses FLEXlm™ software, which is installed as part of Rational Suite.

When you start any Rational Suite point product, you are initially unlicensed. If a license is available, the license manager gives you a Suite license, which allows you to run any of the point products included in the Suite. You retain the license as long as you keep using any of the products. When you exit the last program in the Suite, your license is returned to the license manager and is made available for another user.

If a Suite license is unavailable, you are unable to use any of the products in the Suite until a license is returned by another user.

The License Manager

The Rational License Manager includes the following components:

- A *vendor daemon* named **rational** that dispenses Rational Suite licenses.

The **lmgrd** daemon is used for all of Rational's licensed products. If you have other products from other vendors that also use FLEXlm, they will include their own vendor daemons.

- A *license daemon* named **lmgrd**.

The same license daemon is used by all licensed products from all vendors that use FLEXlm. The **lmgrd** daemon does not process requests on its own, but forwards requests to the appropriate vendor daemon.

- A *license file* that you maintain.

The license file specifies your license servers, vendor daemons, and product licenses.

Note: Rational recommends that you use a single combined license file for all of your Rational products. Alternatively, you will have to launch license servers on multiple machines.

After the license file is in place and the license daemons are running, the server system needs to be set up to automatically restart the license server when it reboots. The **rs_install** and **license_setup** scripts cannot do this automatically for you because this action requires root permissions. The following sections provide the start script commands for each operating system.

Sun Solaris

```
$ su
# cp rational_dir/config/start_lmgrd_on_server-name \
  /etc/rc2.d/S98Rational
```

HP-UX

```
% su
# cp rational_dir/config/start_lmgrd_on_server-name \
  /sbin/init.d/S98Rational
# ln -s /sbin/init.d/S98Rational/sbin/rc2.d/S98Rational
```

License Manager Commands

To verify that your license manager is operational, you can enter these commands on your license server to see if its daemons are running:

```
% ps axw | grep -v grep | egrep "lmgrd|rational"
or
% ps -e | grep -v grep | egrep "lmgrd|rational"
```

The output should include lines similar to the following (your path names may vary):

```
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 brazil 6.0 3 -c ...
```

Table 13 summarizes the system-administration commands that the license manager provides.

Table 13 License Manager Commands

Command	Description
lmdiag	Allows you to diagnose problems when you cannot check out a license.
lmdown	Shuts down license and vendor daemons
lmhostid	Reports license manager host ID of workstation
lmreread	Rereads license file, starts new vendor daemons
lmstat	Reports status on daemons and feature usage
exinstal	Reports on licenses in license file you specify on the command line.

Additional Licensing Commands

In addition to using the commands in Table 13, you can also use the **license_check** command to run the **lmstat** command for counted licenses and the **exinstal** command for any license file (not port@host). The **lmstat** command queries the license server for a list of licenses that are in the license pool. The **exinstal** command checks the license file format and license codes to see if everything is consistent.

The License File

The default Rational license file is either *rational_dir/config/server-name.dat* or *rational_dir/config/Temporary.dat*.

The *Temporary.dat* file is used for both startup and evaluation licenses while the *server-name.dat* file is used for permanent and TLA licenses.

When a user sources the Rational Suite environment set-up script, `rs_setup.sh` or `rs_setup.csh`, the environment variable `LM_LICENSE_FILE` is automatically defined. The license manager uses this variable to locate the license file. The `LM_LICENSE_FILE` environment variable can contain non-Rational products but Rational recommends that you keep the licenses in separate files.

Format

The license file is a text file that is set up by the `rs_install` or `license_setup` programs. Your license file will contain a `SERVER` line, a `VENDOR` line, and one or more `INCREMENT` or `FEATURE` lines.

Customizing License Usage Order

It is possible to set up a mixed environment where the same license server manages licenses for both a Suite product and individual point products. In this situation, license usage order can be customized by modifying the settings in the `License_Map` file on a per-component-product basis. For example, when a user starts an application, such as Rational Rose, you can define whether that user claims a Rational Rose license or a Rational Suite license.

The License Map File

When you install Rational Suite, a default file called `License_Map` is created and stored in the `rational_dir/config` subdirectory. Figure 13 shows the contents of the default `License_Map` file for Rational Suite. The default `License_Map` file is set to claim a Rational Suite DevelopmentStudio license for all products first. If that fails, it will attempt to check out a Rational Suite DevelopmentStudio RealTime license followed by a standalone license.

Figure 13 Default License Map File

```
purecov:5.0 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0, standalone
purify:5.0 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0, standalone
quantify:5.0 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0, standalone
Rose98_Unix:6.0 DevelopmentStudioUNIX:1.0, standalone
RoseRealTime:6.1 DevelopmentStudioUNIXRT:1.0, standalone
ClearQuest:1.1 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0, standalone
soda:3.0 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0, standalone
RationalUnifiedProcess:1.0 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0,
standalone
ClearCase_LT:1.0 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0, standalone
```


The License_Map file ‘maps’ a component product feature and version to a list of features and versions to try in the order given. It contains lines of the following format:

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

The *component_designator* is followed by a comma-separated list of *product_designators*.

A *component_designator* specifies the FLEXlm feature and version number associated with a given Suite component product and has the following syntax:

```
feature_name:version_number (for example, purecov:5.0)
```

A *product_designator* specifies a FLEXlm feature and version number that the license client subsystem will try to claim on behalf of the component product when that product requests a license for the feature and version specified by the *component_designator*. A *product_designator* has the following syntax:

```
feature_name:version_number (for example, DevelopmentStudioUNIX:1.0)
```

In addition, the keyword "standalone" in place of a *product_designator* denotes a stand-alone license; it is equivalent to specifying a *product_designator* that is identical to the *component_designator*.

Comments introduced by “#” are allowed anywhere in the map file.

Note: If a component product is not named in the license map file, then it defaults to claiming a stand-alone license.

The following are some examples of license map settings and a description of how they are handled.

Example 1

```
soda:3.0 DevelopmentStudioUNIX:1.0, DevelopmentStudioUNIXRT:1.0, standalone
```

This line tells SoDA’s license client subsystem to first attempt to check out a Rational Suite DevelopmentStudio license. If that fails, it will attempt to check out a Rational Suite DevelopmentStudio RealTime license. If a Suite license is unavailable, the client subsystem will attempt to check out a stand-alone license (that is, a license with feature name **soda** and version **3.0** or greater).

Example 2

```
soda:3.0 standalone
```

This line tells SoDA’s license client subsystem to check out a standalone license only (that is, a license with feature name **soda** and version **3.0** or greater).

Example 3

```
soda:3.0 DevelopmentStudioUNIXRT:1.0
```

This line tells SoDA's license client subsystem to check out a Rational Suite DevelopmentStudio RealTime license only.

Note: You must have a license map file for Suite licenses to take effect. If a Suite component product cannot find a license map file containing its component name, it assumes that it is a stand-alone installation — that is, it will only try to check out stand-alone licenses, and will fail if none are available. The only way for a product to know that it should use a Suite license is if it finds the Suite license feature name and version in a component mapping specified in a license map file.

RSU_LICENSE_MAP

When you run the user environment setup script (`rs_setup.csh` or `rs_setup.ksh`), the script checks to see if the environment variable `RSU_LICENSE_MAP` is set. If the variable is not set, the script sets the pathname to the default license map file (for example, `rational_dir/config/License_Map`).

Customizing License Usage for All Users

You can create a global license map file that applies to all users by copying the default license map file and modifying it to suit your purposes.

To create a global License_Map file:

- 1 Copy the License_Map file (`rational_dir/config/License_Map`) to another location.
- 2 Modify the file by doing the following:
 - To change the file to use a stand-alone license for the product first and a Suite license second, edit the component as shown in the following example:
`Rose98_Unix:6.0 standalone, DevelopmentStudioUNIX:1.0`
 - To change the file to use a Suite license for the product first and a stand-alone license second, edit the component as shown in the following example:
`Rose98_Unix:6.0 DevelopmentStudioUNIX:1.0, standalone`
 - To change the file to use only a Suite license for the product, edit the component as shown in the following example:
`Rose98_Unix:6.0 DevelopmentStudioUNIX:1.0`

Note: You may choose to omit product designators that do not apply. For example, if you have not installed Rational Suite DevelopmentStudio RealTime, you can delete the entry “DevelopmentStudioUNIXRT:1.0.”

- 3 Instruct users to set the `RSU_LICENSE_MAP` variable to the pathname of your customized license map file.

Customizing License Usage for Individual Users

You can customize license usage for an individual user by creating a license map file for that particular user. The contents of the user license map file will override the contents of the default or global license map file.

To create a customized License_Map file for individual users:

- 1 If the directory does not already exist, create a `~/Rational` directory.
- 2 Copy the `License_Map` to the `~/Rational` directory. If you are using a customized global license map file, be sure to copy that version to the user's directory and not the default license map file in the config directory.
- 3 Only add the component lines for mappings that you want to override:

- To change the file to use a stand-alone license for the product first and a Suite license second, edit the component as shown in the following example:

```
Rose98_Unix:6.0 standalone, DevelopmentStudioUNIX:1.0
```

- To change the file to use a Suite license for the product first and a stand-alone license second, edit the component as shown in the following example:

```
Rose98_Unix:6.0 DevelopmentStudioUNIX:1.0, standalone
```

- To change the file to use only a Suite license for the product, edit the component as shown in the following example:

```
Rose98_Unix:6.0 DevelopmentStudioUNIX:1.0
```

- To change the file to use only a stand-alone license for the product, edit the component as shown in the following example:

```
Rose98_Unix:6.0 standalone
```

Note: You may choose to omit product designators that do not apply. For example, if you have not installed Rational Suite DevelopmentStudio RealTime, you can delete the entry "DevelopmentStudioUNIXRT:1.0."

License Server Process

When you run a Rational Suite product, the following occurs:

- 1 The product checks to see if the environment variable `RSU_LICENSE_MAP` is set. If it is set, it reads the license map file to which it points.
- 2 The product checks to see if a `License_Map` file exists in the user's home directory (`~/Rational/License_Map`). If this file exists, its contents are read and the settings override those loaded from the `License_Map` file indicated by `$RSU_LICENSE_MAP` as follows:

- If a *component_designator* appears only in the RSU_LICENSE_MAP file, then it remains in force.
- If a *component_designator* appears in both \$RSU_LICENSE_MAP and `~/Rational/License_Map`, then the mapping used is the one specified in `~/Rational/License_Map`.

Considerations for Customizing License Usage

Because there is no “one size fits all” solution, consider the following scenarios when defining your license map settings, especially settings that affect all users.

Scenario 1: Rational Rose RealTime set to claim a Suite license first

```
RoseRealTime:6.0 DevelopmentStudioUNIXRT:1.0, standalone
```

In this scenario, starting Rose RealTime will consume a Suite license making it unavailable to other users. If the user is unlikely to use other Suite products, you may want to make a standalone license the default.

Scenario 2: Rational Rose RealTime set to claim a stand-alone license first

```
RoseRealTime:6.0 standalone, DevelopmentStudioUNIXRT:1.0
```

If Rose RealTime always tries to check out a stand-alone Rose RealTime license before attempting to check out a Suite license, another problem is introduced. Now, when the user starts Rose RealTime, a Rose RealTime license is consumed, if one is available. Later, if the user starts another Suite product such as SoDA while their Rose RealTime session is still active, SoDA will check out a Suite license (assuming there are no stand-alone SoDA licenses). At this point, the user is holding two licenses, a Rose RealTime stand-alone license and a Suite license, where the Suite license alone would have sufficed to run both Rose RealTime and SoDA.

It is important to take the time to think about usage profiles. For example, you need to take into account what products users need and how frequently they use them. You need to modify your license map files to best serve these usage profiles.

Licensing Diagnostic Messages

Setting the environment variable RSU_LICENSE_DIAG causes the licensing client subsystem to generate diagnostic messages that show you what it is doing when it searches for license map files, reads them in, and performs licensing operations. Since license maps can be found in various places that depend on the user’s environment, licensing operations can have unexpected results if you are not careful. In these cases, it is very helpful to set RSU_LICENSE_DIAG and examine the resulting messages.

The default for Rational products is to print licensing diagnostic messages on standard error. Note that Rational SoDA does not do this.

Frequently Asked Questions

- 1 Can I use the FLEXlm licensing software that I already have installed?

Yes. Install our license code in the default location (`rational_dir/base/cots`) and use it to serve the Rational licenses.

- 2 I already have FLEXlm installed and managing non-Rational licenses, and now I want to install Rational Suite. Can I do this?

Yes. You can have more than one `lmgrd` on a system, but they must use different ports. You can only have one `rational` daemon on the system.

- a What do I do if my existing FLEXlm installation uses port 27000?

27000 is the default port, so you need to specify a different port number for Rational Suite. Do this by editing the license import file (`.upd` file) and modifying the `SERVER` line. Change the port number to something other than 27000 (for example, 2001). Note that the port number follows the host ID.

- b What do I do if my existing FLEXlm installation uses a port other than 27000?

You do not have to do anything since `rs_install` will default to port 27000. If you are using the same server for other Rational products, you must specify the port number you are using.

- 3 I already have Apex installed with FLEXlm serving Apex licenses. What do I need to do to install Rational Suite?

You need to merge the Rational Suite license with your existing Apex license.

If the `SERVER` lines of the existing Apex license file and the imported Rational Suite file are identical, you can use `rs_install` or `license_setup`. Select option 2 in the **Licensing Options Menu**, and specify the Apex license file as the one to update. Be sure to enter the fully qualified name of the `license.upd` file when prompted for the **File to import from**. Enter the fully qualified name of the Apex license file when prompted to **Enter License File**. You must then restart the license server.

Alternatively, append the `INCREMENT` lines from the Rational Suite `license.upd` file to the existing license file, and then run `lmreread` to have the server reload the license file.

- 4 Can I use the FLEXlm redundant license server feature?

Yes. For more information, see *Setting up Redundant UNIX License Servers* on page 103.

For Further Licensing Information

The *FLEXlm End Users Manual* and *FLEXlm Frequently Asked Questions* guides for the version of FLEXlm that is shipped with the Rational Suite are provided with the Rational Suite online documentation.

For technical support regarding Rational licensing and FLEXlm issues, your first point of contact is always Rational Software Customer Service. See *Contacting Rational Licensing Support* on page 17.

Setting up Redundant UNIX License Servers

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This chapter describes how to set up UNIX license servers in a fault-tolerant configuration using redundant servers. It includes the following topics:

- *Redundant Server Configuration* on page 103
- *Installing the License Server Software* on page 104
- *Setting Up the Redundant Server License Files* on page 106
- *Starting the License Managers* on page 107
- *Restarting the License Manager When a Server Reboots* on page 109
- *Setting up Applications to Use Redundant Servers* on page 110

Redundant Server Configuration

Redundant servers are a system of three servers that work as a team to manage a single pool of floating license keys. If one of the server systems goes down, the other two license servers automatically continue to manage the license pool. This type of redundant configuration requires that a minimum of two license servers be running at all times. If two servers go down, licenses will be unavailable until one of the servers is restarted.

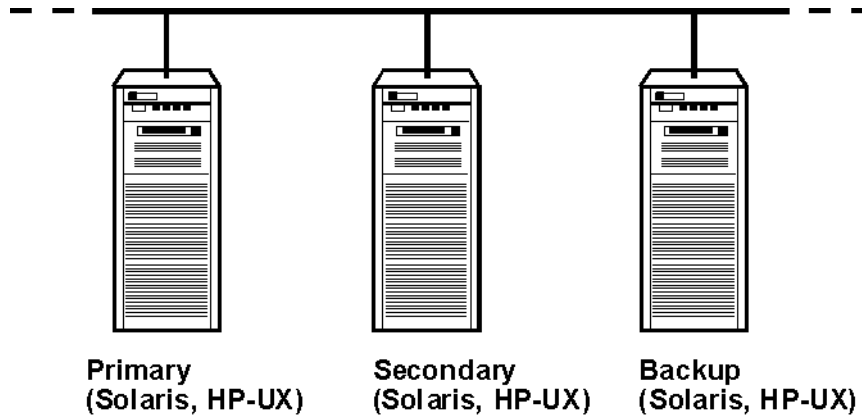
Warning: It is a common misconception that separating redundant servers across multiple sites (for example, one in the U.S., one in Europe, and one in Asia) provides maximum fault tolerance. This is not the case. Redundant server partners should always be at the same site and on the same subnet.

Figure 14 shows the redundant server configuration.

A homogeneous redundant server setup is recommended (that is, all servers are running the same operating system); however, heterogeneous UNIX environments are supported. For example, you could have two license servers running Solaris and one running HP-UX.

Note: A Windows license server is not a supported platform in a UNIX redundant server setup.

Figure 14 Redundant Server Configuration



Each license server must have its own copy of the license file and the license software must be installed locally (NFS is not supported). Each server runs a **FLEXlm lmgrd** process and a **rational** daemon process to manage licenses.

HTML versions of the *FLEXlm User Guide* and *FLEXlm Frequently Asked Questions* are provided with the online documentation. The *FLEXlm Frequently Asked Questions* includes important information about setting up redundant servers.

Installing the License Server Software

While the Rational license server software is typically installed on your primary UNIX license server using the automated install option provided in `rs_install`, the secondary and backup servers should be set up manually.

Follow the procedure described in *To install the license server software on redundant servers manually*: on page 105 to install the license server software on the secondary and backup machines. This procedure assumes that the license server software is already installed on one system (see *Installing the Product* on page 41).

To install the license server software on redundant servers manually:

- 1 Obtain the license server software from one of the following locations:
 - a The Rational Solutions for UNIX CD. Find the server files under the extras directory. For example, the extras/flexlm.7.0f.hp subdirectory contains server files for HP 11.00 and 11.11, and extras/flexlm.7.0f.sol contains server files for Solaris 2.6, 7, 8, and 9.
 - b The Rational FTP site. If you cannot find the FLEXlm files for the platforms you need on the product CD, you can download the appropriate tar file from the following location on the Rational FTP site: ftp://ftp.rational.com/public/tools/flexlm.

Occasionally, downloading the file causes the periods in the filename to be replaced with underscores. If this happens, simply rename the file replacing the underscores with periods.

This table lists some of the files available on the FTP site. (Note that SunOS 4.x and IRIX 5.x are not supported by version 7.0f of FLEXlm and, as a result, these systems cannot be used as license servers.)

Compressed tar file	UNIX Vendor	Operating System	Version
flexlm.7.0f.aix.tar.Z	IBM	AIX	4.x
flexlm.7.0f.axp.tar.Z	HP/Compaq	Tru64 UNIX	V4.0 (B-G), 5.0, 5.1
flexlm.7.0f.hp.tar.Z	HP	HP-UX	B.10.20, B.11.00, B11.11
flexlm.7.0f.sg32.tar.Z	SGI	IRIX	6.x
flexlm.7.0f.sol.tar.Z	Sun	Solaris	2.x

- 2 Copy the FLEXlm files onto all three servers.

Warning: For each server, be sure to copy the appropriate FLEXlm files for the server's operating system.

If you downloaded the software from the FTP site, then copy the tar file into the directory under which you would like FLEXlm installed, and unpack the files as shown in the example below.

Example using the HP-UX tar file:

```
% cd /opt/rational
% dd if=flexlm.7.0f.hp.tar.Z | uncompress | tar -xvf -
```

To verify that the software is installed, enter:

```
% ls -l flexlm.7.0f/hppa_hpux
```

- 3 Set up a FLEXROOT environment variable on all three servers. This is the directory where you will install the FLEXlm files. For example,

```
% setenv FLEXROOT /opt/rational/flexlm.7.0f
```

The FLEXROOT environment variable indicates the location from which you plan to run FLEXlm.
- 4 Refer to the section *Setting up Applications to Use Redundant Servers* on page 110 for further instructions on setting up the server.

Setting Up the Redundant Server License Files

The following is a high-level summary of the steps you need to perform to set up the redundant server license files.

- 1 You need to get a license file that contains keys for redundant UNIX servers, as described in *Getting a Redundant Servers License* on page 106.
- 2 Assign a TCP/IP port to each server, as detailed in *Assigning TCP/IP Ports* on page 107.
- 3 Place copies of the same license file on each of the three license servers as described in *Copying the License File to All Servers* on page 107.

Getting a Redundant Servers License

You need to have a license file for a redundant server setup before you can proceed. You can verify this by opening the license file and checking for three server lines. If you do not have a three-server license file, you will need to return your single server license file and request a new redundant server license file.

- 1 Return your current license. Refer to *Returning or Replacing License Keys* on page 87.
- 2 Determine the host names for the machines that you plan to use as your primary, secondary and backup servers.
- 3 Go to AccountLink (<http://www.rational.com/accountlink>) and request a license for redundant servers. Be sure to specify the redundant servers in the correct order:
 - Host ID is the primary server
 - Host Name #2 is the secondary server
 - Host Name #3 is the backup server

You will be provided with a license file with a name like
license_for_primary.upd.

Assigning TCP/IP Ports

You must assign a TCP/IP port number to each server by modifying the port assignment in each SERVER line.

Warning: There is a known problem in FLEXlm that prevents redundant servers from communicating with each other if you use the default port numbers: 27000 to 27009. Use a port number between 1501 and 26999. Ensure that the port number you use is not in conflict with any other TCP/IP services.

To specify the TCP/IP port number:

- 1 Choose port numbers between 1501 and 26999. Note that the same port number can be used for all three servers, or the port number can be unique for each server.
- 2 For each server, check that the port you will use for that server is not already in use.

For example, (Note: port 1706 is used in our examples)

- Check the **etc/services** file

```
% grep 1706/ /etc/services
```
- Check the NIS services by using the **ypcat services** command.

```
% ypcat services | grep 1706/
```

- 3 Edit the new license file to use the validated port numbers.

Your license file should include lines similar to the ones below. In this example, we used the same port number for all three servers.

```
SERVER primary 8001d410 1706
SERVER secondary 8001d625 1706
SERVER backup 8001d873 1706
```

Copying the License File to All Servers

Rename the *license_for_primary.upd* file to *rational.dat*, and copy it to the \$FLEXROOT directory on all three servers.

Starting the License Managers

Once you have the license server software installed on each server, and you have the redundant server license files in place, you can start the license managers. You must do the following to start the license managers on each server:

- Configure a license server start script for each server, best done by modifying a template file and copying it to the three servers.
- Start each license server manually by using the **start_lmgrd** script.

Configuring the Start Script

Working from the \$FLEXROOT directory, you need to create a start script for each server. A template start script can be obtained at the following FTP site:

ftp://ftp.rational.com/public/tools/flexlm/start_lmgrd

- 1 Copy the start_lmgrd template file to the \$FLEXROOT directory on all three license servers.
- 2 Set the following four variables in the **start_lmgrd** script.

Note: The **start_lmgrd** script uses the **lmgrd** command. For security reasons, it is recommended that you do not run **lmgrd** as *root*, but rather as a regular user. This regular user id is set in the LICENSE_USER variable. The user id that you specify, must exist on the system that runs the start script. In the example below, the user is set to “joe”.

Solaris Example:

```
FLEXROOT=/opt/rational/flexlm.7.0f
LICENSE_DIR=$FLEXROOT/sun4_solaris2
LICENSE_DAT=$FLEXROOT/rational.dat
LICENSE_USER=joe
```

HP-UX Example:

```
FLEXROOT=/opt/rational/flexlm.7.0f
LICENSE_DIR=$FLEXROOT/hppa_hpux
LICENSE_DAT=$FLEXROOT/rational.dat
LICENSE_USER=joe
```

- 3 Change permissions of the start_lmgrd file.

```
% chmod 755 start_lmgrd
```

The above examples show the license server software being installed in the same location, using the same license file name, and the same user. This helps simplify the setup and makes it easier to maintain.

Starting the License Managers

The managers must be started in the correct order: primary server, secondary server, and then backup server.

Note: For security reasons, it is recommended that you do not run **start_lmgrd** as *root*.

To start the license servers:

- 1 Start the primary server’s license manager by entering the following commands:

```
% cd $FLEXROOT
% ./start_lmgrd
```

2 Repeat Step 1 for the secondary and backup servers.

3 Check the status of each server:

```
% ./start_lmgrd lmstat -a
```

To stop the license servers:

Stop each license manager process by running this on each license server machine:

```
% ./start_lmgrd stop
```

To verify the license file:

Check the validity of the license codes:

```
% ./start_lmgrd exinstal
```

This command will generate a report if the license file is not properly encrypted.

If you are having problems starting the license manager:

If a license manager will not start, check the corresponding `lmgrd` log file (identified by `LICENSE_LOG` in `start_lmgrd`).

1 *Error message: ulimit: bad ulimit*

If you see this message when you run `start_lmgrd`, remove the `ulimit` command from the script.

2 If there are any other problems, check that the start scripts reference the correct license file (`LICENSE_DAT`), the license directory (`LICENSE_DIR`), and the license log file (`LICENSE_LOG`). Mail the start scripts, the license files, and the log files to `support@rational.com`. For more information about contacting Rational Licensing Support see *Contacting Rational Licensing Support* on page 17.

Restarting the License Manager When a Server Reboots

All three license servers should be set up to be restarted at boot time. This is accomplished by copying the start script to the appropriate system directory.

In previous releases, Rational used the filename `S1mRational.sh` in the system start directories. If there is an `S1mRational.sh` file under any of the `/etc/` or `/sbin` directories they should be removed and replaced with `S98Rational`.

The following sections provide the start script commands for each operating system.

Note: You must be `root` to perform these steps.

Sun Solaris

```
# cd /opt/rational/flexlm
```

```
# cp start_lmgrd /etc/rc2.d/S98Rational
```

If you need to remove a reference to the **SlmRational.sh** file, use the following command to do so:

```
# /bin/rm -f /etc/rc2.d/SlmRational.sh
```

HP-UX

```
# cd /opt/rational/flexlm
```

```
# cp start_lmgrd /sbin/init.d/S98Rational
```

```
# ln -s /sbin/init.d/S98Rational /sbin/rc2.d/S98Rational
```

If you need to remove a reference to the **SlmRational.sh** file, use the following command to do so:

```
# /bin/rm -f /sbin/*.d/SlmRational.sh
```

Setting up Applications to Use Redundant Servers

This section explains how to set up your applications to use the redundant license server file.

Product is not installed

- 1 Install the product by running **rs_install**. For complete instructions, see *Installing the Product* on page 41.
- 2 Choose option 1, use an existing installation of Rational license server software, from the **Licensing Options Menu**.
- 3 Enter the location of the license file (*port@host*) for all three license servers (for example, 1706@primary:1706@secondary:1706@backup).

Product is already installed

- 1 Run the command **license_setup**.

The **license_setup** command allows you to run a subset of **rs_install** that includes setting up license options and running the license check sequence.

- 2 Choose option 1, use an existing FLEXlm license file, from the **Licensing Options Menu**.
- 3 Enter the location of the license file (*port@host*) for all three license servers (for example, 1706@primary:1706@secondary:1706@backup).
- 4 Proceed with the **License Check Menu**. Choose options 3 and 4. You do not need to perform option 2 because you did this when you started the license servers.

Installing Rational License Server Software on Windows

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Rational Suite for UNIX (Windows Components) can be served licenses by either a Rational UNIX or Windows license server. This chapter describes how to set up and run Rational Windows license servers for use in the Rational Suite for UNIX environment.

This chapter describes how to use the Rational Software Setup program to install the license server software on a Windows server, and includes the following topics:

- *Setting Up Floating Licenses for Windows Servers* on page 112
- *Working with a Supported Network Configuration* on page 112
- *Installing the Rational License Server on a Windows Server* on page 113
- *Opening the Rational License Key Administrator (LKAD)* on page 115
- *Using Floating Keys on a Windows License Server* on page 116
- *Starting the Rational License Server on Windows* on page 117
- *Specifying the License Server on Windows Web Servers* on page 121
- *Difference Between Time-Out Period and Linger Time* on page 123
- *Setting Up Redundant Windows License Servers (Optional)* on page 123
- *License Monitoring (Optional)* on page 125
- *Using Floating Licenses with a Firewall* on page 125
- *Removing the Rational Windows License Server Software* on page 127

You will need to copy your license file for Rational Suite for UNIX (Windows Components) to the license server. If you do not have a license, see *Requesting License Keys* chapter on page 88.

For additional information on Windows component licensing and Rational license servers, refer to the *Rational Software License Management Guide*.

Setting Up Floating Licenses for Windows Servers

The steps required to set up floating licenses are outlined here.

Some of the tasks listed below are not recommended for the casual or novice user. Attempt them only if you are familiar with the Windows operating system and Rational Common Licensing.

- 1 Understand the Rational Common Licensing model. See *Understanding Rational Suite Licensing* on page 83.
- 2 Request and receive permanent license keys. See *Acquiring License Keys* on page 86.
- 3 Make sure your license server and clients can work with the network configuration that you have set up. See *Working with a Supported Network Configuration* on page 112.
- 4 Install the Rational license server software on the server. See *Installing the Rational License Server on a Windows Server* on page 113.
- 5 Install the evaluation/temporary or permanent license keys on the license server system. See *Opening the Rational License Key Administrator (LKAD)* on page 115, *Entering Temporary Floating License Keys* on page 117, or *Importing Floating License Keys* on page 116.
- 6 Start the license server software. See *Starting the Rational License Server on Windows* on page 117.
- 7 Tell desktop users to specify the Rational license server in their desktops.

Working with a Supported Network Configuration

This section provides important information about network configurations.

Dial-Up Support

You can use floating licenses with a dial-up network connection that supports a constant TCP/IP connection to the Rational license server. All clients must have a constant TCP/IP connection to the license server.

If the dial-up connection is lost while a client has checked out a floating license, the server will automatically reclaim the floating license. When the connection is lost, the client cannot periodically “talk” to the license server to refresh its license. Because the client cannot refresh its license, the Rational product runs for a limited period of time. This time period is product dependent.

WAN Support

Rational floating licenses can be used over a wide area network if this is in compliance with the geographical allowance of the License Agreement.

If you choose to run licenses over a WAN, be aware of how your systems resolve hostnames. Rational recommends, but does not require, that you always use the fully qualified domain names in the SERVER line and on the clients. This technique tends to reduce the number of issues with hostname resolution.

Novell Support

Rational floating licenses can be used in a Novell 5.0 environment that is configured with TCP/IP and/or IPX. Rational's licensing implementation does not support using Novell Netware 5.0 or later directly with floating licenses.

Node-locked licenses with Novell 5.0 are supported.

Installing the Rational License Server on a Windows Server

This section describes how to use the Rational Setup Wizard to install the Rational License server software that enables you to flexibly install and manage license keys. You do not have to have a license key to operate the Rational license server software.

Before You Install the License Server on a Windows Server

The requirements for installing the Rational license server on a Windows server is minimal:

- The Rational license server runs on Windows operating systems (NT 4.0 or higher), except Windows 9x and XP Home systems.
- The Windows server must have a C:\ drive.
- You must have Windows administrator privileges on the local system
- The default TCP/IP port number is 27000.
- There is no minimum recommended processor, memory, or disk space.

Note: Make sure that you have a current backup of your Registry and system directories before running the Rational installation program.

Default Installation Path

The Rational Setup Wizard uses C:\Program Files\Rational as the default installation path. If your C:\ drive lacks sufficient free disk space, either specify another drive or

make space available on the default drive. A C:\ drive must exist on the license server regardless of where you install the Rational license server software.

Using the Rational Setup Wizard

This section describes how to install the Rational license server from the CD. If you would like to install the Rational license server from a release area or set up a silent installation, see the instructions in the *Rational Software Server Products Installation Guide*. The Rational Setup Wizard guides you through the software installation. Click **Next** to launch the installation, and to advance through the following screens.

The Setup Wizard does not display an error summary. The log of installation activities called Rational_install.log records all installation activities. You and a Customer Support representative can use the log to trace any installation errors. By default, the install log file is in the TEMP directory. The location of the directory depends on the TEMP environment variable set on the computer. To find the location, open a command Window and type `echo %TEMP%` at the DOS prompt. This folder and file may be hidden. To display them in Windows Explorer, set **Show Hidden Files and Folders**.

Note: Interrupting an installation that is in progress may leave your system in an indeterminate state. If you try to close the Rational Setup Wizard window while the installation is in progress, you are asked to confirm that you want to exit from the incomplete installation.

To install the license server from a CD image:

- 1 Log in as a user with administrator rights on the local computer on which you want to install the product.
- 2 Insert the Rational Solutions for Windows disc 1 into the system's CD drive.

The Rational Setup Wizard starts automatically.

If autorun is disabled on your system, click **Start > Run** and enter `cd_drive:\Setup.exe`, where `cd_drive` is the letter of the CD drive.

- 3 The **Product Selection** page lists all products available for installation. Select the Rational license server.
- 4 On the **Deployment Method** page, select the **Desktop Install from CD Image** option.
- 5 Choose to accept or not to accept the Rational Software license agreement in the **License Agreement** page. To view the Open Source license agreement, select the check box **View Open Source Agreement**.
 - If you accept the license agreement, the installation Wizard continues.

- If you do not accept the license agreement, exit the Setup Wizard by clicking **Cancel** and then **Finish**. If you click **Cancel** any time during the installation procedure or before the installation completes, you will not see any visible changes to the system. The program returns your system to the state it was in before you launched the Rational Setup Wizard.

If you do not have the correct version of Windows Installer software on your computer, the Rational Setup Wizard will install it for you. Canceling the installation does not remove the updated version of Windows Installer. In some cases, you may have to restart the computer. .

- 6 The **Destination Folder** page specifies the directory where you want to install the license server software. Click **Change** to modify the location.

Note: The installation Wizard requires that all Rational products be installed in the same directory.

- 7 Click **Install** on the **Ready to Install the Program** dialog to begin the installation.

- 8 A **Restart Windows** page appears if the Rational Setup Wizard needs to restart your computer. If files required for the installation are in use during the Rational Setup program and if the program needs to install shared components on your system, the Setup Wizard may need to restart your system.

Select **Restart** or **Don't Restart**. If you select **Don't Restart**, the Wizard reminds you that the installation cannot complete until Windows restarts.

- 9 When the **Setup Complete** page appears, we recommend that you review the current information related to new features and known issues in the readme file. In addition, you can view the Rational Developer Network Web pages. Click **Finish** to complete the installation.

Note: Install the floating license keys on the license server before you start the license server. See *Importing Floating License Keys* on page 116.

Opening the Rational License Key Administrator (LKAD)

The Rational License Key Administrator (LKAD) is installed with your Rational software and with your Rational license server software. This Rational application provides an interface to Rational Common Licensing features. Use the LKAD or the LKAD Wizard to enter or import license keys and change your license configuration.

Note: You must have certain administrative privileges for the computer before you can enter or import license key information in the LKAD and the LKAD Wizard.

- To access the LKAD and the LKAD Wizard on a desktop or server, click **Start > Programs > Rational Software > Rational License Key Administrator**.

- To access the LKAD and the LKAD Wizard on the Rational license server, click **Start > Programs > Rational Software > Rational License Server > Rational License Key Administrator**.

To access the Help, click **Help** in the License Key Administrator's main menu, click **Help** in the LKAD Wizard dialog box, or open *Install Path*\Rational\Common\licadmin.hlp.

Using Floating Keys on a Windows License Server

This section describes how to import or enter floating license keys on the Rational license server.

Importing Floating License Keys

Import the license key file on the license server by using the Rational License Key Administrator (LKAD).

Note: You must have local administrative privileges for the server before you can import the license key into the LKAD.

To import a license key file in the LKAD:

- 1 Select **License Keys > Import License Key(s)** on the menu bar.
- 2 In the **Import License Key(s)** dialog box, find the *.upd or *.txt file (license key file) and highlight it.
- 3 Click **Open**. The default location for the license key file is *rational_dir*\Rational\common.
- 4 Click the **Import** button in the **Confirm Import** dialog box.

Other Methods

- If your e-mail program supports launching programs from file attachments, double-click the .upd or .txt attachment in the e-mail notification you received from Rational Software. Select **Open** it in the **Opening Mail Attachment** dialog box. Click the **Import** button in the **Confirm Import** dialog box.
- Save the file attachment to any folder and double-click the license file.
- Use the LKAD Wizard.

Entering Temporary Floating License Keys

You may enter a temporary or evaluation license key on the license server if you are evaluating the product or AccountLink is unavailable.

Note: You must have local administrative privileges for the server before you can enter the license key into the License Key Administrator (LKAD).

To enter license information in the LKAD:

- 1 Select **License Keys > Enter a License** in the menu bar of the LKAD.
- 2 Select the type of license.
- 3 In the next dialog box, enter the following information:
 - Product
 - Expiration Date
 - License Key
 - Quantity
- 4 Click **Finish**. The LKAD adds this information to the license .dat file in <rational_dir>\Rational\common.

Starting the Rational License Server on Windows

Start the Rational license server after you have imported or entered the license keys. (The server will not start until license keys are installed.) Use the correct procedure based on the Windows O/S version on your license server.

Note: Although the FLEXlm control panel applet may still appear on your server from an earlier install of Rational license server software, starting with version 2001, the Rational license server no longer uses this applet for startup.

Table 14 Starting the Rational Windows License Server

Windows OS	Startup Sequence
Windows XP	<ol style="list-style-type: none">1 Click Start and select Settings > Control Panel > Administrative Tools > Services > FLEXlm License Manager.2 Click Start the service.
Windows 2000	<ol style="list-style-type: none">1 Click Start and select Settings > Control Panel > Administrative Tools > Services > FLEXlm License Manager.2 In the General tab, click the Start button under Service Status.

Table 14 Starting the Rational Windows License Server

Windows OS	Startup Sequence
Windows NT	<ol style="list-style-type: none"> 1 Click Start and select Settings > Control Panel > Services. 2 Select the FLEXIm License Manager in the Services dialog box and click the Start button.

Switching to Manual Startup

The Rational license server is automatically set as a Windows NT service. The default startup type is **automatic**, which means the license server starts automatically each time you start the system. If you prefer to manually start the license server, switch the startup type.

Table 15 Switching the Startup Type for Rational Windows License Server

Windows OS	Sequence
Windows XP	<ol style="list-style-type: none"> 1 Click Start > Settings > Control Panel > Administrative Tools > Services > FLEXIm License Manager. 2 Right-click FLEXIm License Manager, and then click Properties. 3 On the General tab, in the Startup type scroll-down box, select Manual.
Windows 2000	<ol style="list-style-type: none"> 1 Click Start > Settings > Control Panel > Administrative Tools > Services > FLEXIm License Manager. 2 In the General tab, select manual under Startup type.
Windows NT	<ol style="list-style-type: none"> 1 Click Start > Settings > Control Panel > Services > FLEXIm License Manager. 2 In the dialog box, select manual under Startup type.

Running the LKAD from the Windows Command Line (Optional)

To automate license server configuration on desktops, you can create a batch file and a text file that specifies *single*, *multiple*, and *redundant* Rational license servers on users' desktops. Users launch the batch file from a DOS window.

Note: These commands do not support node-locked license keys.

If users are performing silent installations, add a post-installation section to the response.ini file. The post-installation section launches batch file commands after the installation finishes. The batch file directs the LKAD to use the server information in the text file. To add a post-installation command to the response.ini file, see *Specifying*

the Post-Installation Command and Batch File on page 119. For more information about silent installations, see the *Rational Server Products Installation Guide*.

If users are not performing silent installations, you can have them use the command line to direct the LKAD to use information in the text file. To set up the text file and run the LKAD from the command line, see *Creating the Text File That Specifies License Servers* on page 119.

Specifying the Post-Installation Command and Batch File

After you record a response.ini file, append the following commands to the file.

- 1 Use a Windows text editor, such as Notepad, to edit the response.ini file. Append a line similar to the following example to the end of the file. The label

```
[PostInstallCmd] is required:  
[PostInstallCmd]  
Command=post-installation-commands.bat
```

- 2 Save the response.ini file to a unique name (to ensure that it is not overwritten by subsequent autocaptures). For example, save the response file with a name such as C:\responses\enterprise-windows-post.ini.

- 3 Use the text editor to create the post-installation-commands.bat file. This batch file directs the LKAD to use the license server information in the text file (server-info.txt). This batch file might contain the following commands:

```
licadmin -fserver-info.txt  
net send administrator "Installation Complete"
```

In this example, the desktop's License Key Administrator, `licadmin`, starts and uses the information in `server-info.txt` to specify the name of the license server that the desktop will use. The batch file then sends a message to the administrator, indicating that the installation is complete.

- 4 See *Creating the Text File That Specifies License Servers* for the LKAD commands to insert in the text file `server-info.txt`.

Creating the Text File That Specifies License Servers

The following section provides instructions for setting up the text file that specifies single, multiple, or redundant license servers. These instructions also provide the commands for running the LKAD from a command window if users are not running silent installations.

Specifying Single or Multiple License Servers

To specify the name of single or multiple Rational license servers in a desktop's License Key Administrator:

- 1 Create a file in a text editor, such as Notepad, that contains the following line:
`PortAtHost:27000@Server1`
where *Server1* is the name of the Rational license server.

When you type this line:

- The keyword `PortAtHost` is case sensitive.
- The number 27000 is the default port number.
- Use semicolons in the series of server names. The trailing semi-colon is also required.

To add an additional server, enter `@Server2`, where *Server2* is the name of the additional Rational license server.

```
PortAtHost:27000@Server1;@Server2;
```

- 2 Save the file, for example, `server-info.txt`.
- 3 In a command window (if the user is not running a silent installation), enter the following command:

```
licadmin -fserver-info.txt
```

Your computer will be configured to use floating license keys from *Server1* and *Server2*.

The results of running this command are written to the status file `server-info.txt_STATUS`, where `server-info.txt` is the name of the license parameter file you created. The status file is created in the directory where you placed the `server-info.txt` file.

Specifying Redundant License Servers

To specify the names of redundant license servers in a desktop's License Key Administrator:

- 1 Create a file in a text editor, such as Notepad, that contains the following line:
`PortAtHost:27000@Redundant1,27000@Redundant2,27000@Redundant3;`

where *Redundant1* is the name of the primary Rational license server, *Redundant2* is the name of the secondary license server, and *Redundant3* is the name of the tertiary license server. The number 27000 is the default port number.

When you type this line:

- The license servers must be specified in the order of Primary, Secondary, and Tertiary (Backup) server. For more information about redundant server order, see *Setting Up Redundant Windows License Servers (Optional)* on page 123.
- The keyword `PortAtHost` is case sensitive.

- Use *commas* in the series of *redundant* server names. The trailing semi-colon is also required.
- You can specify redundant servers and multiple servers in one file. Use commas between redundant servers and semi-colons between servers.

```
PortAtHost:27000@Redundant1,27000@Redundant2,27000@Redundant3;
27001@Server1;@Server2;
```

or

```
PortAtHost:27001@Server1;27000@Redundant1,27000@Redundant2,
27000@Redundant3;@Server2;
```

- 2 Save the file, for example, server-info.txt.
- 3 In a command window (if the user is not running a silent installation), enter the following command:
licadmin -fserver-info.txt

The results of running this command are written to the status file server-info.txt_STATUS, where server-info.txt is the name of the license parameter file you created. The status file is created in the directory where you placed the server-info.txt file.

Specifying the License Server on Windows Web Servers

In the case of RequisiteWeb and ClearQuest Web, the Web server is the client of the license server. For example, when a user opens RequisiteWeb on a client, the RequisiteWeb Requirements server, on behalf of the user, requests the floating license from the Rational license server.

Configuring to Use a Single License Server

Use the following procedures to specify the license server hostname:

- 1 Open the License Key Administrator (LKAD):
 - After the product installation is complete, launch the LKAD Wizard and the LKAD. The License Key Administrator main window and the License Key Administrator Wizard dialog box appear
 - If you decided not to launch the LKAD Wizard and LKAD immediately after product installation, click **Start > Programs > Rational *product name* > Rational License Key Administrator**. The License Key Administrator main window and the License Key Administrator Wizard dialog box appear.
- 2 Select **Settings > Client/Server Configuration**.
- 3 Click **Add Server**.

- 4 **Single** should be the default value next to **Server Type**. Enter the hostname of the license server in the **Values** column next to **Server Name** by clicking **New-Server**. Press the Enter key after typing the name.

Additional Servers

If you have additional license servers, click the **Add Server** button and enter the hostname for each server.

Note: Do not use **Add Server** for a redundant server environment.

- 5 Click **OK** after you have entered all servers.

Note: Your Web server requests licenses from servers in the order that you enter the servers in the LKAD.

Configuring Web Servers to Use Redundant License Servers

Redundant servers are a system of three servers that work as a team to manage a single pool of floating license keys. If one of the server systems goes down, the other two license servers automatically continue managing the license pool. See *Setting Up Redundant Windows License Servers (Optional)* on page 123.

To enter the redundant Windows license servers on the Web server:

- 1 Open the License Key Administrator (LKAD):
 - After the product installation is complete, launch the LKAD Wizard and the LKAD. The License Key Administrator main window and the License Key Administrator Wizard dialog box appear
 - If you decided not to launch the LKAD Wizard and LKAD immediately after product installation, click **Start > Programs > Rational *product name* > Rational License Key Administrator**. The License Key Administrator main window and the License Key Administrator Wizard dialog box appear.
- 2 Click **Settings > Client/Server Configuration**.
- 3 Click **Add Server**.
- 4 Change the **Server Type** from **Single** to **Redundant**.
- 5 Enter the Primary, Secondary, and Tertiary license server hostnames *in the order* in which the license administrator requested them in AccountLink. Press the tab key to move to the next line.
- 6 Click **OK**.

Difference Between Time-Out Period and Linger Time

The time-out period is the set period of product non-use after which the license server will reclaim a license. The Rational license server will reclaim a floating license when the product has not been used for a default period of 120 minutes. If you use the product again after the server has reclaimed its license, the product will check out the license again from the server.

The linger time is an interval that is reset to the beginning each time a user executes a command in the application. If the linger time expires before the user executes another command, the user's license is returned to the pool of available floating licenses, and the user has to acquire another license to execute any more commands. This linger interval is set and cannot be changed.

Rational ClearCase LT and Floating License Linger Time

Unlike other Rational products, ClearCase LT licenses operate with a linger time of 30 minutes. The first time a user executes a ClearCase LT command that takes a license, the license is allocated to that user for 30 minutes. This 30 minute “linger” interval is re-started every time the user executes a ClearCase LT command that takes a license. If ClearCase LT checks out a suite license, the suite license does not operate with a 30 minute linger time.

Modifying the Floating License Time-Out Period

To change the time-out period, create a text file called `rational.opt` in the `<rational flexlm dir>` common directory. Enter one of the following two commands in the text file:

- 1 `TIMEOUT feature seconds` directs the license server to reclaim the `feature` (the product as it is listed in your license key file) after the number of seconds that you enter into the file.
- 2 `TIMEOUTALL seconds` directs the license server to reclaim all products after the number of seconds that you enter into the file.

The value for each of these options must be greater than 7200 seconds (or 120 minutes).

Setting Up Redundant Windows License Servers (Optional)

Rational license servers can be set up to run in a fault-tolerant configuration known as *redundant servers*. Redundant servers are a system of three servers that work as a team to manage a single pool of floating license keys. If one of the servers goes down, the

other two license servers automatically continue managing the license pool. If any two license servers no longer work, the third license server will no longer serve licenses. Two servers must operate to serve licenses to clients.

Example

You have purchased 25 floating licenses of Enterprise Suite and wish to set up a redundant server configuration on three Windows systems. You request permanent keys for the redundant servers using AccountLink. You install the Rational license server software on each of the three redundant server partners; servers A, B, and C. When you receive the license file of 25 permanent floating keys, you install the license file on each server.

The three servers work as a team to manage all 25 floating licenses in unison. When you have 20 license keys checked out to your users and server A crashes, servers B and C continue to manage the 25 licenses.

Warning: It is a common misperception that distributing redundant servers across multiple sites (for example, one in US, one in Europe, one in Asia) provides maximum fault tolerance. This is not the case. Redundant servers should always be at the same site and on the same subnet.

To configure redundant license servers:

- 1 Install license server software on three systems. See *Working with a Supported Network Configuration* on page 112 and *Installing the Rational License Server on a Windows Server* on page 113.

Note: Rational strongly recommends using a redundant environment of either *all* Windows servers or *all* UNIX servers.

- 2 Import a license file that you receive from Rational on each license server. See *Using Floating Keys on a Windows License Server* on page 116 for more information.
- 3 Start the license servers. The sequence is unimportant, but you should start the servers soon after one another. See *Starting the Rational License Server on Windows* on page 117 for instructions.
- 4 Give desktop users the Primary, Secondary, and Tertiary (Backup) license server host names *in the order* in which you requested them in AccountLink. They need to enter the host names in their LKADs.

License Monitoring (Optional)

You may need to monitor and report on license usage. GLOBEtrötter offers a solution for license usage reporting called SAMreport. SAMreport is designed specifically for reporting on license server activity. SAMreport offers a full set of administrative tools that generates reports, graphs, high-water marks, and even sets alarms to notify individuals when a server has gone down or the license pool is nearly exhausted. SAMreport works with any vendor's FLEXlm server. It is available only through GLOBEtrötter at: <http://www.globetrotter.com/samreport.htm>.

If you do not need extensive license usage reporting, use the **lmtools GUI** to find out who used which license and when the user did so. If the license server is installed, click **Start > Programs > Rational FLEXlm License Server > License Tools**. License Tools starts the **lmtools GUI**.

- 1 Select **Configuration using Services** in the **Mode** menu.
- 2 Click the **Server Status** tab and the **Perform Status Enquiry** button in the **Server Status** dialog box.

Using Floating Licenses with a Firewall

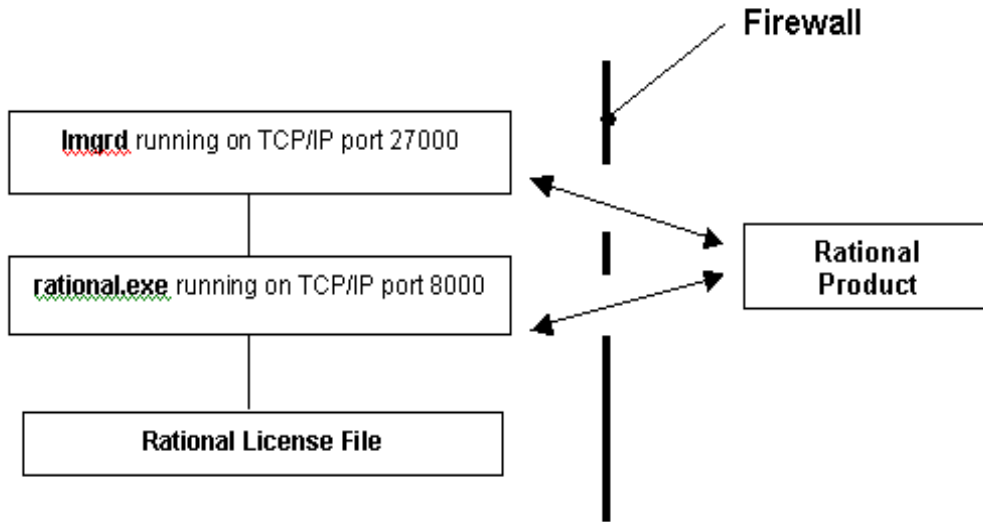
Rational's licensing implementation supports a firewall. To configure licensing with a firewall, give the `lmgrd` daemon (license manager) and the vendor daemon (Rational vendor or `rational.exe`) TCP/IP port numbers. The TCP/IP port is used for client/server communication for floating licenses.

In a non-firewall situation, the `lmgrd` daemon starts on TCP/IP port 27000 when you start the server. (You will have to change this number if another application is using this port number.) The `lmgrd` daemon assigns a random TCP/IP port number to the vendor daemon.

In a firewall situation, the client cannot communicate with the daemons on the license server because the ports on which they are running are blocked. To enable license requests to pass through the firewall, assign numbers to the vendor and `lmgrd` ports. The vendor daemon and `lmgrd` daemon must start on a specific port number each time a client makes a license request and checks out a floating license from the server. The specified ports or connections remain open until the client returns the license to the server.

Note: The vendor daemon and the `lmgrd` daemon cannot be set to the same port number.

The following diagram displays a sample firewall situation. The Rational product on the right-hand side can communicate with the `lmgrd` daemon and `rational.exe` (vendor daemon) on the license server through the firewall because the numbers 27000 and 8000 have been assigned to the ports.



When you specify the port information, the Rational License Key Administrator stores the port information in the registry.

The following procedures let you change the `lmgrd` and vendor ports in single, multiple server, or redundant server environments. They assume that you have already started the license server(s) and entered the host name(s) of the license server(s) in the License Key Administrator of each client.

Assigning Port Numbers in the Rational License Server

To enable clients to communicate with the license server, enter values in the `lmgrd` port and the Rational Vendor port.

To enter port numbers on a license server or redundant license servers:

- 1 Select **Settings > Server Ports** in the Rational License Key Administrator.
- 2 In the **Server Ports** dialog box, enter values in the `lmgrd` port and the Rational Vendor port, but do not set them to the same value.
- 3 Click **OK**.

- 4 If the server is a redundant server, enter the same port value on each of the redundant servers by repeating Steps 1–3. If there are multiple license servers, enter the same port value on each license server by repeating Steps 1-3.
- 5 Give users the Rational Vendor Port value to enter into the License Key Administrators of their desktops.

Changing the lmgrd Port

When another application is using the TCP/IP port 27000 that is used by `lmgrd` (license manager daemon), change the `lmgrd` port. You do not need to enter a value in the Rational Vendor because it runs on a random TCP/IP port.

The following procedures let you change the `lmgrd` port in single, multiple, or redundant server environments. They assume that you have already started the license server(s) and entered the hostname(s) of the license server(s) in the License Key Administrator of each desktop.

To change the `lmgrd` port value on a license server or redundant server:

- 1 Select **Settings > Server Ports** in the Rational License Key Administrator.
- 2 In the **Server Ports** dialog box, enter a value in the `lmgrd` port.
- 3 Click **OK**.
- 4 If the server is a redundant server, enter the same `lmgrd` port value on each of the other license servers by repeating Steps 1–3.

Removing the Rational Windows License Server Software

This section describes how to remove the license server software from the server.

Before You Remove the License Server Software

- 1 Make sure that no one is using the license server or any associated files. You cannot remove files that are in use.
- 2 Return the license keys to your Rational Account through AccountLink (<http://www.rational.com/accountlink>). For more information about moving or returning licenses, see *Returning or Replacing License Keys* on page 87.
- 3 To remove the software from a Windows system, you must have Windows administrator privileges on the local system.

Removing the License Server Software

Use the Windows **Add/Remove Programs** control panel to select and remove the license server software. The Rational installation program removes the files from your system. It does not remove directories that contain files that you created while you were using the software. It also does **not** remove the license key files from the server.

Appendices

Accessing the CD Drive

A

This section provides instructions for mounting and unmounting a CD drive in the UNIX environment.

Mounting the CD Drive

As root, make a directory (if one does not already exist) to be the mount point for the CD drive. The following examples for each platform use the directory `/cdrom`. Make sure you know the device name of the CD drive. If you do not know the device name for the CD drive, consult your system administrator. Mounting commands for different operating systems are as follows:

Sparc/Solaris with Volume Management

Solaris 2.x with volume management mounts to the `/cdrom` directory. This happens automatically when you load the CD drive. You have volume management if the `vold` daemon is running on the system.

Sparc/Solaris (Solaris 2.x) without Volume Management

```
# mkdir /cdrom
# mount -r -F hsf s /dev/dsk/c0t6d0s0 /cdrom
```

HP-UX 11.0, 11.11 (11.i)

```
# mkdir /cdrom
# mount -r -F cdfs /dev/dsk/c0t2d0 /cdrom
```

Unmounting the CD Drive

For CD installs, unmount the CD drive with the following commands.

For Solaris with volume management (`vold` is running):

```
% eject cd
```

All others must unmount the CD as *root*.

```
% su  
# umount /cdrom
```

Note: You cannot eject the CD if you are at the directory `/cdrom` or `/cdrom/cdrom0`. If you get a “Device busy” error, change your directory location to a location other than the CD and repeat the above commands.

Use the information in this chapter if you run into problems installing Rational Suite. The following areas are covered in this chapter:

- *Installation Problems with Rational Suite (UNIX Components)* on page 133
- *Installation Problems with Rational Suite (Windows Components)* on page 138
- *Product Runtime Problems* on page 139

Contact Rational Technical Support if you are unable to resolve your problems or if you have questions regarding the installation, use, or maintenance of this product.

Installation Problems with Rational Suite (UNIX Components)

This section lists the possible problems that might be encountered when running `rs_install`, or its related scripts, to install or configure Rational Suite (UNIX Components).

General

Cannot Create Directories

If you have problems creating directories, it may be that you do not have the correct permissions. Check your login name and the groups you belong to using the UNIX `id` command. Check the permissions of the directory in which you are trying to create a directory. You must have read (r), write (w), and execute (x) permissions.

Could Not Install file0

Reported error: `FAIL: Could not install file0:`

This means that the installation was trying to untar this file. In doing so, it expected it to create a directory structure that looks something like `releases/product.ver/install`. It could be that the tar command failed due to lack of disk space, or you do not have permission to read the file. Check to see if you can untar the file that is shown by doing a `tar -tf file0`, where `file0` is the full path to file0.

Data Not Found by rs_install

Reported error: `Could not find rs_install data`

Check that you have correctly mounted the CD-ROM. Refer to *Accessing the CD Drive* on page 131. Also, make sure that you are running the installation commands from the CD-ROM directory. There must be an `extras` directory in the same location: the `rs_install` command looks for the installation data there. If you have mounted the `/cdrom` directory from another system, make sure the directory has been properly exported – it needs to be listed in the filesystem table for exported file systems. This file is operating system dependent.

Disk Space Unavailable

If you run out of disk space while installing products, you cannot ignore this problem. The best thing to do is uninstall the Suite and reinstall it in a place where you have sufficient space to do the installation. Disk space requirements are summarized in *Installation Requirements for Rational Suite (UNIX Components)* on page 36. The approximate amount of disk space you need to install the Suite, and each component, is also listed in the **Product Customization Menu** when you run the `rs_install` command.

Display Problems

If you are having problems with the display showing strange characters on your screen and your screen does not clear for each new menu, you may have your `TERM` environment variable set incorrectly. Try setting it to something else like `xterm`, `vt100` or `ansi`. To prevent the program from using escape sequences to do underlining, run the programs with the `-no_underlining` (alias `-nu`) option. This will prevent the commands from using escape sequences.

Install File Not Found

Reported error: `FAIL: Could not find a file to install from here:`

This means that the install could not find a tar file in the listed directory. It could be that you are trying to install a Solaris CD-ROM on a non-Solaris system or an HP-UX CD-ROM on a non-HP-UX system.

Permission Problems on tar

If you have permission problems when using the `tar` command, you may be trying to install on top of an existing installation. In most cases, this type of error can be ignored.

Uninstall Failure

If an uninstall fails, it may be for either of the following reasons:

- You did not perform the original installation. Log in as the user who installed the product and re-run the **uninstall** script as that user.
- There are still Rose, SoDA or FLEXlm processes running. Kill any processes left running by these products before re-running **uninstall**.

Licensing

License Key Problems

Reported error: There is a problem with one license key
or: There are problems with <N> license keys.

This means that the license keys in the license file do not match and are inconsistent with the text of the license. The licenses consist of several parameters and a 12-digit hexadecimal key that was created using these parameters. The parameters are in ASCII text but they cannot be changed or it will invalidate the license. The parameters used to create the license are the server host ID, license name, vendor daemon name, expiration date, number of users (quantity), VENDOR_STRING, OVERDRAFT, SUPERSEDE, DUP_GROUP, and NOTICE.

Suite Version Not Licensed

Reported error: DevelopmentStudio for UNIX <version> is not licensed.

This means that there is a problem with the license server. It could be that:

- 1 The license server was never started.
- 2 The license server failed to start. This happens if the license keys are inconsistent.
- 3 There is already a license server running but it is not using the Rational Suite DevelopmentStudio license file. Check the license server log file, which is kept in */rational_dir/config/server-name.log*.

No Such Feature

Reported error: Users of DevelopmentStudioUNIX: Cannot get users of
DevelopmentStudioUNIX: No such feature exists (-5,222)

This could mean that multiple Rational servers are running, or a stale Rational lock file was not cleaned up. This error could result from the following conditions:

- Another copy of **lmgrd** is running.
- An **lmgrd** was killed using **kill -9**. The vendor daemon is still running.

To correct this, kill the **lmgrd** and **rational** processes and remove the lock file:

- 1 Use the **ps** command or equivalent to find the process IDs:

```
% ps -ax | egrep "lmgrd|rational"
```

- 2 Kill those processes:

```
% kill Process-ID-of-lmgrd Process-ID-of-rational
```

- 3 Remove the lockrational file, which can be found in either `/usr/tmp` or `/tmp`, and then run **start_lmgrd_on_***machineName*, which can be found in `/rational_dir/config/`.

No Remote Access to License Server

Reported error: You do not have remote access to <license-server-name> from <local-host-name>, so it cannot be set up as a license server...

It may be that the license server is not the same system on which you are installing. You must have remote shell access (**rsh** or **remsh**) to the license server system.

Host License Servers Do Not Match

Reported error: Host <license-server-name> is running Solaris. Host <local-host-name> is running HP-UX. They do not match so <license-server-name> cannot be used as a license server.

It may be that the license server is not the same system on which you are installing. If so, it must run the same operating system that the product you are installing requires.

License Server Cannot Access Installed Products

Reported error: Host, <license-server-name> does not have access.

The license server must have access to some license files that reside in the *rational_dir* directory where Rational products have been installed. It may be that the license server is not the same system on which you are installing and that it does not have access to these files. If this is the case, ensure that the disk where Rational products are installed is NFS mounted on the license server system.

Cannot Set License Manager Host Identifier

Reported error: Cannot set <license-server-name's> host ID with this command: `rational_dir/base/cots/flexlm.7.0f/lmhostid`

The **lmhostid** command failed. Check to see if the **lmhostid** command shown will run on your local host. If so, enter the host id in the **License Server Host ID Menu** (option 2).

Cannot Access lmhostid

Reported error: Cannot access
rational_dir/base/cots/flexlm.7.0f/lmhostid on <license-server-name>.

There was a problem accessing the *rational_dir* directory or the **lmhostid** command was not installed from the CD-ROM.

Invalid Host Identifier

Reported error: Host ID <nnn> not valid. Less than 4 digits.

This means that the host ID number will not work. Check again using the **lmhostid** to see what the host ID is. It should be at least four or more hexadecimal digits.

Port Number Already in Use

Reported error: Port number <pn> is in use in /etc/services.
or: Port number <pn> is in use under NIS services.

You have entered a port number that is already in use in your */etc/services* file or under NIS services, you may have a problem with licensing. Rational products use FLEXlm, which uses TCP/IP sockets to communicate with a license server using a specific port number. This port number is specified in the license file on the **SERVER** line. The license server will not be able to open a socket on a port that is already in use. Rational recommends that you use port number 27000.

Missing License Increment Line

Reported error: Checked the *import* file and could not find an **INCREMENT** line for <license feature>.

<i>License Feature</i> -----	<i>Description</i> -----
DevelopmentStudioUNIX	Rational Suite DevelopmentStudio for UNIX (UNIX Components)
DevelopmentStudioUNIXWeb	Rational Suite DevelopmentStudio for UNIX (Windows Components)

No License Information for Rational Suite Development Studio for UNIX

Reported error: There does not appear to be any license information to import for Rational DevelopmentStudio for UNIX.

This means that the *import* file you specified contains **INCREMENT** lines but none of them match the two that are expected. Make sure that the file you import contains one or both of these license keys.

Some Components Not Being Served a License

Reported error:

```
Users of DevelopmentStudioUNIX: (Total of 1 license available)
Users of DevelopmentStudioUNIXWeb: NOT LICENSED.
```

```
1 of the 2 license components is not being served.
This may be okay, since 1 license is being served.
```

This means that you only have a license to use Rational Suite DevelopmentStudio (UNIX Components). If you are not using the unlicensed product, no action is necessary. If you plan to use the Windows Components, request a Rational Suite DevelopmentStudio (Windows Components) or a Rational Suite DevelopmentStudio RealTime (Windows Components) license from AccountLink.

Error on ulimit

Reported error: `Error message: ulimit: bad ulimit`

If you see this message when you run `start_lmgrd`, remove the `ulimit` command from the script.

Installation Problems with Rational Suite (Windows Components)

General

If you have problems installing the Web Interface components of Rational Suite, take the following actions before you call Rational Technical Support:

- Be sure to stop all Windows applications before you begin the installation.
- Turn off all virus protection software. These programs often run in the background and interfere with the installation and file decompression process.
- Turn off user interface managers or desktop environments that run in Microsoft Windows.
- Disable video features such as virtual screens or screen switching.
- Change to a standard mouse driver, or disable special mouse features that perform tasks such as leaving pointer trails or Support Information

Licensing

The **Imtools** application is available on Windows and is designed to help diagnose licensing issues. Rational installs this application with all products in the *rational_dir\common* directory. If the license server is installed, click **Start > Rational License Server > License Tools**. For more information about using this diagnostic tool, see the *FLEXlm User Guide*.

Product Runtime Problems

This section describes errors that might be encountered during start-up or regular run of a Rational product. These may be due to improper Rational Suite installation, licensing, or post-install set-up.

CLC File is Corrupt or Missing

Reported error: The file pointed to by `RSU_TEMPLATE2_INI` is corrupt or missing, unable to check out licenses.

In order to get a license upon start-up, all Rational UNIX products require that the `templates2.ini` file exists and is identified by the `RSU_TEMPLATE2_INI` environment variable, and also that this file has not been tampered with after Rational Suite installation. This error is reported through different mechanisms for each product.

Here are some specific examples of this error reported for the various products:

- SoDA flags the error as a FrameMaker+SGML Alert: Unable to Get Soda License.
- In Quantify, the error is reported on the command line. The Purify and PureCoverage errors are similar.

```
"Quantify engine: While processing file /joe/rational/demo_q/x.o:  
Error: License checkout failure: The file pointed to by  
RSU_TEMPLATE2_INI is corrupt or missing, unable to checkout  
licenses"
```

If these errors are being reported, then you will have to acquire a clean copy of the `templates2.ini` file and put it in the location indicated by the `RSU_TEMPLATE2_INI` environment variable setting. You can find the file on the Rational Solutions for UNIX CD in the `extras/install_data` directory, or you can contact Rational Customer Support.

CLC File is Obsolete

Reported error: The file pointed to by `RSU_TEMPLATE2_INI` is out of date, unable to check out licenses.

Acquire a new `templates2.ini` file and replace the old version with this new one. Check that the `RSU_TEMPLATE2_INI` environment variable points to this new file.

RSU_TEMPLATE2_INI Environment Variable Not Set

Reported error: Required environment variable RSU_TEMPLATE2_INI is not set. Please set it to point to a valid templates file and run again.

Ensure that RSU_TEMPLATE2_INI points to a valid templates2.ini file.

RUP Builder Reports Out Of Memory Error on HP-UX 11.x

While publishing with RUP Builder, if you get an error stating that there is an "out of memory" problem, then you can solve the problem by changing certain kernel parameters. The underlying cause is that for most Java applications, the kernel parameters (specifically, max_thread_proc) are, by default, set at too low a value. As a result, there are not enough kernel threads to support the Java application, and this manifests itself as an "out of memory" error.

More information can be found at:

http://www.hp.com/products1/unix/java/infolib/program_guide/java1_3/configuration.html

Furthermore, the tools used to determine the current parameter values (**HPjconfig**) and to modify them (Java out-of-box tool) can be obtained from <http://www.hp.com>.

The following table lists the parameters that, when tuned, will fix the problem:

Parameter Names	Parameter Formulas	Recommended Values
max_thread_proc	64	3000
maxdsiz	0x10000000	2063835136
maxfiles	60	2048
maxfiles_lim	1024	2048
maxusers	32	512
ncallout	(16+NKTHREAD)	6000
nfile	(16 * (NPROC+16+MAXUSERS) / 10 + 32 + 2 * (NPTY+NSTRPTY+NSTRTEL))	30000
nkthread	(((NPROC*7) / 4) + 16)	6000
nproc	(20+8*MAXUSERS)	2068

SoDA Unable to Find ClearQuest Information Source

Reported error: Unable to evaluate connector "internalError: Unable to find information source "ClearQuest" in either \$FMHOME/fmunit or \$SODA_SCRIPTS"

SoDA cannot locate ClearQuest. Rerun **post_install** and provide a valid ClearQuest install location when prompted during the SoDA configuration phase.

Glossary

AccountLink. Rational's Web-based license management tool. Customers can use this tool to request and return licenses to their Rational accounts.

ANY-HOST. A license key issued for ANY-HOST will run on any system, and is not tied to the customer's system ID.

Emergency Key. A temporary key that lets a customer use Rational software for a fixed period of time if they cannot use their own license for some reason. The duration of the Emergency Key is five days. Emergency Keys can be node-locked or floating. Emergency Keys are distributed by the Licensing Support Group and run on any host.

Evaluation Key. A temporary key that lets a customer use and evaluate Rational software for a fixed period of time. Rational Software determines the duration of the Evaluation Key. Evaluation Keys can be node-locked or floating. Evaluation Keys are distributed by the Sales team and run on any host.

Floating License. A license type that links products to a license server system. Client systems obtain licenses from the license server when they need to run a copy of Rational software. Multiple clients can share the pool of floating licenses; one license is granted per client per product. Floating licenses on license servers are typically administered by system administrators.

JVM. Java Virtual Machine. The Java program executable is required in support of the RUP Builder software that is included in the Rational Suite.

Key Type. Node-locked and floating licenses can be enforced by different types of license keys. The types of license keys are Startup and Permanent. Evaluation and Emergency keys are variations of Startup keys, and Term License Agreements (TLAs) are a variation of Permanent keys. Each type of key has different business rules and policies.

License. A legal right to use a product. A customer receives a license when they purchase the product. However, they need a license key to actually associate the product and the system on which it is running with a license.

License Key. Generic term used in this document to describe keys that enable licenses on a customer system. The types of license keys are: permanent, temporary, evaluation, emergency, and Term License Agreement (TLA).

License Key Administrator. A Windows program written by Rational Software, which provides a customer interface to Rational's Licensing system. Similar functionality exists for UNIX with a subset of the **rs_install** command, called **license_setup**. Starting with the release of Rational Suite 1.0 and associated point products, the License Key Administrator or **license_setup** command is installed whenever a Rational software product is installed. For hosting floating licenses on Windows, the License Key Administrator is installed when the Rational License Manager software is installed on a Windows License Server system.

License Key Code. An encrypted code used to enforce a license agreement.

License Type. The valid types of licenses are node-locked licenses and floating licenses. See also **Key Type**.

Node-Locked License. A type of license that links a product to a system. Typically, one node-locked license is issued per software copy.

Permanent Key. A license that lets customers run Rational products indefinitely. Permanent Keys can be node-locked or floating. Node-locked Permanent Keys are installed on a client system. Floating Permanent Keys are installed on a license server. Note that a Term License Agreement, a variation of a permanent key, does have an expiration date. See *Term License Agreement*.

Permanent Key Code. The encrypted code that lets a customer run a particular Rational product using a Permanent Key.

Rational Common Licensing. A common licensing strategy used for all Rational products, which is based on the FLEXlm technology by GLOBEtrouter Software Inc.

Rational License Server. Software license manager for Rational's Windows and UNIX products based on FLEXlm from GLOBEtrouter Software Inc.

Temporary Key. A short-term license key that lets a customer run Rational software products. Temporary licenses are not keyed to a specific system. Temporary Keys can be node-locked or floating. Node-locked Temporary Keys are installed on a client system. Floating Temporary Keys are installed on a license server.

Temporary Key Code. The encrypted code that lets a customer run a particular Rational product using a Temporary Key.

Temporary License Key Certificate. A piece of paper or an electronic file that contains information a customer needs to begin using Rational software with a license. The temporary License Key Certificate is shipped to the customer with the software installation media.

Term License Agreements (TLAs). Variation of a Permanent Key. TLAs are issued to a site to let their employees use Rational software for a negotiated period of time. TLAs are issued by Rational Sales and have an expiration date.

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