Rational Suite®

Installation Guide

VERSION: 2002.05.00

PART NUMBER: 800-025340-000

UNIX

Rational®
the software development company

Installing Rational Suite DevelopmentStudio

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Preface

The *Rational Suite Installation Guide* provides you with the information that you need to install Rational Suite for UNIX. Additional information about each point-product in the Suite is provided in the point-product documentation, which is available on the *Rational Solutions for UNIX Online Documentation* CD.

Rational Suite delivers a comprehensive set of integrated 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 teams and across team boundaries, reducing development time and improving software quality.

Audience

This guide is intended for developers, system administrators, and quality engineers, who use Rational Suite.

Other Resources

- All manuals are available online, either in HTML or PDF format. The online manuals are on the *Rational Suite DevelopmentStudio UNIX Online Documentation* CD.

- To send feedback about documentation for Rational products, please send e-mail to techpubs@rational.com.

- For more information about Rational Software technical publications, see: http://www.rational.com/documentation.

- For more information on training opportunities, see the Rational University Web site: http://www.rational.com/university.

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Contacting Rational Technical Support

When you contact Rational Technical Support, 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 case ID number (if you are following up on a previously reported problem)

- The Rational Account number listed on your Rational License Key Certificate (Rational Licensing Technical Support only)

Contacting Rational Technical Support

If you have questions about installing, using, or maintaining this product, contact Rational Technical Support as follows:

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

Contacting Rational Licensing Technical Support

If you have questions about acquiring license keys for your Rational Software products, contact Rational Licensing Support as follows:

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

Your Location	Telephone	Facsimile	E-mail
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 American (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

Requesting Licenses

To request or return permanent (or Term License Agreement) license keys, access AccountLink: http://www.rational.com/accountlink.

Receiving Important Product Announcements

To receive automatic notification of new releases, patches, and critical technical information, subscribe to our announcements e-mail distribution list.

To subscribe:

1 Send an e-mail to majordomo@rational.com.

2 In the body of your message, type:

```
subscribe unix-suite-announcements
```

To unsubscribe:

1 Send an e-mail to majordomo@rational.com.

2 In the body of your message, type:

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unsubscribe unix-suite-announcements
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Overview

<div style="text-align: right">1</div>

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 is our newest edition of Rational Suite for UNIX. This edition of Rational Suite 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 guide, *Rational Suite Introduction.*

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

Table 1 summarizes the point products provided in each edition of Rational Suite. Additional information about the point products is provided in the sections that follow the table.

Table 1   Point Products in Rational Suite for UNIX

		DevelopmentStudio	DevelopmentStudio RealTime Edition
	Point Products		
Team Unifying Platform	Rational Unified Process	●	●
	Rational RequisitePro	● [1]	● [1]
	Rational ClearQuest	● [2]	● [2]
	Rational SoDA	●	●
	Rational ClearCase LT	●	●
	Rational TestManager	● [3]	● [3]
	Rational Rose	●	● [4]
	Rational PureCoverage	●	●
	Rational Purify	●	●
	Rational Quantify	●	●

1 This is a Rational Suite Windows Component. UNIX user access is through their browser using Rational RequisiteWeb.
2 This is included as both a Rational Suite UNIX Component and a Rational Suite Windows Component. UNIX users can access Rational ClearQuest through a native UNIX interface or through their browser using Rational ClearQuest Web.
3 Although shipped on its own CD, UNIX Test Agent software works in conjunction with Rational TestManager. Access to a UNIX Test Agent is available only through Rational TestManager, which is run from within the Windows environment.
4 RealTime Edition

Rational Suite (UNIX Components)

Rational Suite (UNIX Components) includes the following point products:

- ▪ Rational Unified Process

- ▪ Rational ClearQuest

- ▪ Rational SoDA

- ▪ Rational Rose or Rational Rose RealTime (depending on the Suite Edition)

- ▪ Rational PureCoverage

- ▪ Rational Purify

- ▪ Rational Quantify

- Rational Test Agent (UNIX Test Agent)

Note: The group of products, Rational PureCoverage, Rational Purify, and Rational Quantify are referred to collectively as Developer Tools in this guide.

Rational Suite (UNIX Components) is installed from the *Rational Solutions for UNIX* CD and requires either a Rational Suite DevelopmentStudio (UNIX Components) or a Rational Suite DevelopmentStudio RealTime (UNIX Components) license key.

The UNIX Test Agent is installed from the *Rational Test Agent* CD. UNIX Test Agent software works in conjunction with Rational TestManager, which is run from within the Windows environment. Your Rational Suite DevelopmentStudio (Windows Components) or Rational Suite DevelopmentStudio RealTime (Windows Components) license key is used to run Rational TestManager and Rational Test Agent.

Rational Suite (Windows Components)

Rational Suite (Windows Components) includes the following point products:

- Rational RequisitePro
- Rational RequisiteWeb
- Rational ClearQuest
- Rational ClearQuest Web
- Rational TestManager

Rational Suite (Windows Components) are installed from the *Rational Solutions for Windows* CD and require either a Rational Suite DevelopmentStudio (Windows Components) or a Rational Suite DevelopmentStudio RealTime (Windows Components) license key.

Other Products

The following additional products are provided with Rational Suite:

- Rational ClearCase LT
- Rational Rose RealTime Companion Products
- Crystal Reports
- Rational License Server Software
- Adobe Acrobat
- Netscape Navigator

Rational ClearCase LT

Rational ClearCase LT is provided on a separate CD as an optional product for you to install. You can use your Rational Suite DevelopmentStudio (UNIX Components) or Rational Suite DevelopmentStudio RealTime (UNIX Components) license key to run ClearCase LT.

To install this product, see the *Rational ClearCase LT Installation Guide* and *Rational ClearCase LT Release Notes.*

Rational Rose RealTime Companion Products

The Rational Rose RealTime Companion Products are provided with Rational Suite DevelopmentStudio RealTime. These products can be installed from the *Rational Rose RealTime Companion Products* CD and include:

▪   Rational Quality Architect

▪   Rational Connexis

For licensing requirements for the Companion Products, refer to the Welcome Letter included with the product. For more information about installing the Rational Rose RealTime Companion Products, refer to the *Rational Rose RealTime Professional Edition Release Notes and Installation Guide.*

Crystal Reports

Crystal Reports can be used with Rational TestManager or Rational ClearQuest (Windows only) to customize or create new report formats from the standard output generated by these two applications.

Crystal Reports is provided on the *Crystal Reports Pro Edition* CD. To install this product, refer to instructions provided with the CD.

Rational License Server Software

This version of Rational Suite includes version 7.0f of the FLEXlm licensing server software. It is highly recommended that you take advantage of the features provided by version 7.0f to help optimize your license server's performance.

The Rational License Server Software is provided on the *Rational Solutions for UNIX* CD and on the *Rational Solutions for Windows* CD. For more information about installing the Rational License Server software on UNIX, see *Installing the Product* on page 55. For more information about installing the Rational License Server software on Windows, see *Installing the Rational License Server Software on Windows* on page 97.

Adobe Acrobat and Netscape Navigator

Adobe Acrobat 4.0 and Netscape Navigator 4.7 are provided on the *Rational Solutions for UNIX Online Documentation* CD. For more information, see *Online Documentation* on page 23.

Online Documentation

Rational Suite documentation is provided on the *Rational Solutions for UNIX Online Documentation* CD. You can access the documentation directly from the CD or you can install the documentation in the product installation area so that multiple users can have access to this information. Generally, guides are provided in either HTML or PDF format. In some cases, both formats (HTML and PDF) are provided.

If you prefer printed copies, the complete Rational Suite product documentation set can be ordered separately. For more information, contact your Rational sales office.

Viewing Documentation Online

You can view all of the Rational Suite documentation both directly from the CD and from the installed product area.

Prerequisites

A browser (for example, Netscape 4.7 or higher) is required to view HTML documents. Adobe Acrobat is required to view the PDF files. Netscape Navigator 4.7 and Adobe Acrobat 4.0 are provided on the *Rational Solutions for UNIX Online Documentation* CD for you to install.

Viewing Documentation from the CD

To view documents directly from the CD, run the command **rs_help** from the CD's root directory.

Viewing Documentation from the Installation Area

To view documents from the installed product area, run the command **rsdsu_help**

Note: You must set up your Suite environment for the shell that you are using by running **rs_setup.csh**, or **rs_setup.ksh**, before you can use this command.

Installation Guide Roadmap

Table 2 helps you to navigate through this guide.

Table 2   Installation Guide Roadmap

Chapter	Description
Before You Install	Provides information about the tasks you need to perform before you install the software. Topics include hardware and software requirements and planning your installation.
Understanding Rational Suite Licensing	Provides information about license types and how to request a license using AccountLink or using the fax request form.
Installing the Product	Provides instructions about how to install Rational Suite (UNIX Components), Rational Suite (Windows Components), and the online documentation.
Installing the Rational License Server Software on Windows	Provides instructions about how to set up a Windows server for the Rational Suite (Windows Components).
Administering Licenses	Provides information about managing licenses.
After You Install	Provides information about configuring Rational Purify, Rational PureCoverage, Rational Quantify, Rational Rose, and Rational SoDA.
Troubleshooting	Provides information about troubleshooting your installation.

Overview of a Typical Installation

The following list gives an outline of what takes place during a "typical" installation. Detailed instructions are provided in subsequent chapters.

- Install the license server software and Rational Suite (UNIX components).

- Test the licensing of the Rational Suite (UNIX components).

- Configure the Rational Suite (UNIX components)

- Check that the Windows host is correctly networked to the UNIX license server.

- Install the Rational Suite (Windows components) on the Windows server.

- Configure the Windows server to use the UNIX license server (if using a single license server configuration).

- Test the licensing of Rational Suite (Windows components).

- Configure the Rational RequisiteWeb and Rational ClearQuest Web interfaces (if applicable) on the Windows system.

- Test access to Rational RequisiteWeb and Rational ClearQuest Web (if applicable) with a browser from UNIX.

To take full advantage of the Rational approach to software development, we recommend that at least one person on your team (generally the analyst or product manager) use a Windows system to author requirements with RequisitePro. These requirements can be accessed on your UNIX workstation through the RequisiteWeb interface.

Before You Install

2

The following topics are covered in this chapter:

Ensure that you meet the requirements listed in this chapter before proceeding with the installation.

Before You Install Checklist

Table 3 provides a checklist for 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 3   Before You Install Checklist

Step	Action
1 Verify that you meet the hardware and software requirements for this release of Rational Suite.	See the following sections: ■ *Rational Suite (UNIX Components) Installation Requirements* on page 29 ■ *Rational Suite (Windows Components) Installation Requirements* on page 37
2 Determine how you want to set up your server configuration based on the products you are planning to use.	See *Planning Your Installation* on page 40
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 *Rational ClearQuest Installation Guide.* For Requisite Pro, see the *Rational RequisitePro Installation Guide.*
4 Do you plan to install Rational ClearCase?	If yes, install Rational ClearCase before you install Rational Suite. Refer to the ClearCase product documentation, located on the *Rational Solutions for Windows Online Documentation* CD, for instructions on how to install.
Do you plan to install Rational ClearCase LT?	If yes, you should install Rational Suite DevelopmentStudio first and ClearCase LT second. See *Installation Requirements for Rational ClearCase LT* on page 36.
5 Do you plan to use Rational SoDA?	If yes, see *Installation Requirements for Rational SoDA* on page 35.

Table 3   Before You Install Checklist

Step	Action
6 If you are installing Rational Suite DevelopmentStudio, do you plan to use Rational Apex with Rational Rose or with Rational SoDA?	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 the installation. Alternatively, you can go ahead and install Rational Suite and install Apex later. See *Integrating Products That Are Not Part of the Suite* on page 77 for information about how to integrate Apex with Rose or SoDA after you have installed the Suite.
7 Obtain a valid license key.	You need either a temporary license, an existing license, or a permanent license *before* you install the product. If you are using an existing license, go to Step 8. If you are using a temporary license, locate your license key certificate and go to Step 8. If you want to install the product using a permanent license, see *Requesting License Keys* on page 51.
8 You are ready to install Rational Suite.	See *Installing the Product* on page 55.

Rational Suite (UNIX Components) Installation Requirements

Hardware Requirements

Table 4 summarizes the hardware requirements for Rational Suite DevelopmentStudio (Unix Components). Table 5 summarizes the hardware requirements for Rational Suite DevelopmentStudio RealTime (Unix Components). Note that the recommended amount of memory is only the suggested minimum amount. Additional memory may improve performance. Your memory requirements will also be larger depending on the tasks you are attempting and what else is resident (running concurrently on the system). For example, the construction of larger Rational Rose or Rational Rose RealTime models requires more memory.

Table 4   Rational Suite DevelopmentStudio Hardware Requirements

Product	Swap Space	Memory	Disk Space	
			Solaris	HP-UX
Rational Unified Process	NA	16 MB minimum	57 MB	57 MB
Rose	150 MB + 50 MB/user	64 MB + 32 MB/simultaneous user	335 MB + 1 to 3 MB for each model	365 MB (10.20) 365 MB (11.00) + 1 to 3 MB for each model
SoDA with Frame	64 MB	32 MB minimum	192 MB	252 MB
Purify[1]	–	2–5 times application size	16 MB	11 MB (32-bit) 12 MB (64 bit)
Quantify [1]	–	2–5 times application size	15 MB	10 MB (32-bit) 12 MB (64 bit)
PureCoverage [1]	–	2–5 times application size	9 MB	12 MB
ClearQuest	NA	48 MB	115 MB	230 MB
RequisitePro Web Interface	NA	NA	NA	NA
Totals	214 MB + 50 MB /user	160 MB + 32 MB/user + Purify, Quantify, and PureCoverage requirements	740 MB	940 MB
Recommended Suite Requirements	500 MB + 50 MB/user	256 MB + 32 MB/user	0.9 GB	1.3 GB

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

Table 5   Rational Suite DevelopmentStudio RealTime Hardware Requirements

Product	Swap Space	Memory	Disk Space	
			Solaris	HP-UX
Rational Unified Process	NA	16 MB minimum	57 MB	57 MB
Rose RealTime	770 MB	256 MB minimum	355 MB + 1 to 3 MB for each model	355 MB + 1 to 3 MB for each model
SoDA with Frame	64 MB	32 MB minimum	192 MB	252 MB
Purify [1]	–	2–5 times application size	16 MB	11 MB (32-bit) 12 MB (64 bit)
Quantify [1]	–	2–5 times application size	15 MB	10 MB (32-bit) 12 MB (64 bit)
PureCoverage [1]	–	2–5 times application size	9 MB	12 MB
ClearQuest	NA	48 MB	115 MB	230 MB
RequisitePro Web Interface	NA	NA	NA	NA
Totals	214 MB + 50 MB /user	160 MB + 32 MB/user + Purify, Quantify, and PureCoverage requirements	760 MB	905 MB
Recommended Suite Requirements	500 MB + 50 MB/user	256 MB + 32 MB/user	0.9 GB	1 GB

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

Software Requirements

The following platforms are supported in Rational Suite, version 2002.05.00:

- Solaris 2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8)
- HP-UX 10.20, 11.00, and 11.11

Note the following point product exceptions:

- Rational Unified Process is not supported on HP-UX 10.20.

- Rational Rose RealTime is not supported on HP-UX 11.0 or 11.11. For more information, see *Installation Requirements for Rational Rose RealTime* on page 35.

Each point product within Rational Suite has its own range of OS version compatibility as summarized in Table 6. Customers should pick the OS version that intersects the product mix they intend to use.

Table 6   Individual Product OS Version Compatibility

Product	Solaris	HP-UX
Rose	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8)	10.20, 11.0, and 11.11 See Table 7 for more information.
Rose RealTime[1]	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8)	10.20
SoDA with Frame	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8)	10.20, 11.0, and 11.11
Purify	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8) (32 and 64 bit)	10.x through 11.0, and 11.11 32 and 64 bit (narrow and wide mode)
Quantify	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8) (32 and 64 bit)	10.x through 11.0, and 11.11 32 and 64 bit (narrow and wide mode)
Pure Coverage	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8) (32 bit only)	10.x through 11.0, and 11.11 32 bit only
ClearQuest	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8)	10.20, 11.0, and 11.11
Rational Unified Process [1]	2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8)	11.0 and 11.11 Note that Rational Unified Process is not supported on HP-UX 10.20.

1 Requires an HTML browser. Netscape Navigator 4.7 or later is recommended.

Installation Requirements for Rational Rose

This section lists requirements that must be met to successfully use Rational Rose. Table 7 summarizes the software requirements for Rational Rose.

Table 7   Rose Software Requirements

Software Item	Requirement	For
Operating system	Solaris 2.6, 7, and 8 (kernel revision January 2000 and later) HP-UX 10.20 (ACE release [1]), 11.00, and 11.11	Use
C++ Compiler #include files	Solaris SC 5.0 HP-UX 10.20: HP aC++ B3910B A.01.21 HP aC++ B3910B A.01.19.02 Language Support Library HP-UX 11.00: HP aC++B3910B A.03.13 HP aC++B3910B X.03.11.10 Language Support Library	Analyzer
JDK, JFC, and J2EE	JDK 1.1.6 JFC 1.1 (swing classes for 1.1) JDK 1.2 (based on 1.2.1) J2SE 1.2 (based on 1.2.2) J2SE 1.3 J2EE 1.2 or any of the major Java IDEs	
Java	Rose J supports the following Java IDE's. Use the JDK appropriate to your IDE. [2] ▪ Forte for Java Internet Edition 2.0 & 3.0(Solaris & Linux only) ▪ Forte for Java Community Edition 2.0 & 3.0(Solaris & Linux only) ▪ JBuilder 4.0, 5.0, and 6.0 Professional Edition (Solaris & Linux only) ▪ JBuilder 4.0, 5.0, and 6.0 Foundation Edition (Solaris & Linux only)	
Port map daemon	Must be running	Installation, Use
TCP/IP	Must be running	Installation, Use
Host names	Must be configured	Installation, Use
Page/swap space	$150 + (50 * N)$ MB	Use

Table 7   Rose Software Requirements (continued)

Software Item	Requirement	For
X Window System	Native X11R5 or X11R6 (except HP 10.20) X news on Sun with OpenWindows 3. PC X server eXceed version 6.1 or higher	Use
Window Manager	MWM (Motif Window Manager) version 1.2 vuewm on HP-UX 4dwm on SGI IRIX dtwm (CDE (Desk Top) version 1.0) olwm (Open Look Window Manager) on Sun is supported, but icons of Rose may not integrate well with other icons on the screen The following Window Managers are not supported: olvwm (olwm with virtual screens) Rose will not remain on original virtual desktop, but rather will follow when other desktops selected. twm (shipped with X11) tvtwm (twm with virtual screens) fwm gwm fvwm	Use

1 Rose requires that an ACE release be installed to run properly on HP-UX 10.20. To determine if an ACE release is installed, run **/usr/sbin/swlist | grep ACE**.

2 See the Rose_IDE_Link_README file in the release for Rose UNIX/Linux IDE Link Integration setup information, prior to using the IDE Link integration.

Rational Rose - Operating System Runtime and Patch Requirements

For information regarding Rational Rose runtime and operating system patch requirements, see Appendix A, *Rational Rose - Operating System Runtime and/or Patch Requirements* on page 137.

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

Installation Requirements for Rational Rose RealTime

This section provides requirements that must be met to successfully use Rational Rose RealTime.

If you plan to install Rational Suite DevelopmentStudio RealTime on HP-UX 11.0 or 11.11 and want to use Rational Rose RealTime, you must do the following:

1   You must install Rational Suite DevelopmentStudio RealTime on an NFS-mounted drive that is accessible from an HP-UX 10.20 system.

2   Runs **rs_setup** from the HP-UX 10.20 system to set up the environment required to run Rational Rose RealTime and other Suite products.

   rs_setup is located in *rational_dir* (where *rational_dir*) is the directory in which you installed the Suite.

Rational Rose RealTime - Operating System Patch Requirements

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

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

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

Installation Requirements Rational Rose RealTime Companion Products

You must install Rational Suite *before* you install any of the Rational Rose RealTime Companion Products. The Rational Rose RealTime Companion Products are provided with Rational Suite DevelopmentStudio RealTime. These products can be installed from the *Rational Rose RealTime Companion Products* CD and include:

▪   Rational Quality Architect

▪   Rational Connexis

For more information about installing the Rational Rose RealTime Companion Products, refer to the *Release Notes and Installation Guide - Rational Rose RealTime Professional Edition.*

Installation Requirements for Rational SoDA

Note: FrameMaker + SGML is no longer shipped with SoDA. It must now be licensed and installed independently. Rational SoDA 2002.05.00 supports FrameMaker+SGML 5.5 and 6.0.

You may want to install FrameMaker + SGML 5.5 or 6.0 before you install Rational Suite. Make a note of the FrameMaker + SGML installation directory as you need to provide this during the installation.

Alternatively, you can go ahead and install Rational Suite and install FrameMaker + SGML later. See *Integrating Products That Are Not Part of the Suite* on page 77 for information about how to integrate FrameMaker + SGML with SoDA after you have installed the Suite.

If you have previously installed version 3.0.1, 3.0.3, or 3.1.0 of Rational SoDA, 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 when you uninstall the Suite. When you install Rational Suite, be sure to install the new version of SoDA, and when prompted for the FrameMaker + SGML location, enter the path to the previous version.

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: www.rational.com/support/.

Installation Requirements for Rational ClearCase LT

Rational ClearCase LT is included with on the *Rational ClearCase LT (UNIX)* CD. Your Rational Suite DevelopmentStudio for UNIX (UNIX Components) or Rational Suite DevelopmentStudio RealTime for UNIX (UNIX Components) license key can be used to run ClearCase LT.

You must install Rational Suite *before* you install Rational ClearCase LT. When you install Rational ClearCase LT you are prompted to provide the host name of the Rational Suite license server. By doing the installation in this sequence, ClearCase LT will be able to use the Rational Suite license key.

For more information about the requirements for installing Rational ClearCase LT, see the *Rational ClearCase LT Installation Guide*.

Rational Suite (Windows Components) Installation Requirements

Installation Requirements for Rational TestManager

Rational TestManager is included with this release and is provided on the *Rational Solutions for Windows* CD. Your Rational Suite DevelopmentStudio (Windows Components) or Rational Suite DevelopmentStudio RealTime (Windows Components) license key can be used to run Rational TestManager.

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

This product is run in a Windows environment. Before you can use Rational TestManager with a UNIX environment, you must install the UNIX Agent from the *Rational Test Agent* CD. For more information about requirements for installing Rational TestManager and Rational Test Agent, see the *Rational Testing Products Installation Guide*.

Installation Requirements for RequisitePro

RequisitePro is installed on the Windows platform and is accessed on UNIX through a web interface. Installation requirements for RequisitePro are listed in this section.

Complete installation instructions can be found on the *Rational Solutions for Windows Online Documentation* CD. You can also view the instructions online by typing **rsdsu_help**.

Note: It is recommended that for best web server performance a dedicated Windows Server system be configured.

Hardware Requirements

To run RequisitePro you need:

- Pentium 300 MHz or faster processor recommended
- 128 MB or more of memory
- 250 MB or more of disk space
- 800 x 600 x 256 color video resolution, or higher
- Microsoft Mouse or compatible pointing device
- CD-ROM drive

Licensing Requirements

Your Rational Suite DevelopmentStudio (Windows Components) or Rational Suite DevelopmentStudio RealTime (Windows Components) license key can be used to run Rational RequisitePro. This license can be served from a license server on UNIX or Windows.

Note: If you are configuring your Windows system to get licenses from a UNIX system, you will need to have DNS configured on your Windows system.

To check, try to ping the UNIX license server by name and by IP address. If networking is okay, you should be able to ping the system by IP address. If DNS is configured, you will be able to ping by name.

Installation Requirements for RequisiteWeb

RequisiteWeb provides a Web interface for accessing RequisitePro project data through a Web browser.

Installation and configuration instructions can be found in *rational_dir*/docs/html/reqweb_install/RequisiteWebInstall.html. This document is available through the documentation browser accessed through the **rsdsu_help** command.

Oracle and SQL Server Databases

To create and access RequisitePro projects in Oracle or Microsoft SQL Server databases, you must configure an Oracle or SQL Server schema on your database server, and install RequisitePro and RequisiteEnterprise on your client system.

Note: RequisiteEnterprise is available separately for Rational Suite users who require access to these database servers.

RequisiteWeb Interface

The RequisiteWeb interface requires the installation of Web components on a Microsoft Windows server and a Web browser on the client system.

Web Server

RequisiteWeb requires that it be installed on an Internet Information Server (IIS). If you prefer to use the Personal Web Server (PWS), you can do so by performing a "Custom Installation" and checking the box for Internet Service Manager.

IIS is the web server for Microsoft NT Server; PWS is the web server for Microsoft NT Workstation. Since NT Workstation and Personal Web Server have a limited number of connections, they are often not suitable for production use. However, you may find it convenient to use Personal Web Server for evaluation or demonstration purposes.

The following table summarizes the requirements for the RequisiteWeb server.

RequisiteWeb Component	Disk Space
Operating System	One of the following: ▪ Microsoft Windows 2000 Advanced Server ▪ NT Server 4.0, Service Pack 6A or later ▪ NT 4.0 Option Pack
HTTP Server	One of the following: ▪ Internet Information Services (IIS) 4.0 and Microsoft Transaction Server (MTS) 2.0 ▪ Internet Information Services (IIS) 5.0
Processor	400 MHz or greater
Memory	128 MB. For projects with more than 10,000 requirements or Web sites with more than 10 concurrent users, 256 MB or more is recommended.
Disk space	RequisiteWeb (includes system DLLs) – 40 MB
Other products	▪ Microsoft Word 2000 ▪ Microsoft Word 2002 ▪ Oracle, version 7.3, 8.1.5, 8.1.6, 8.1.7 client software (for accessing projects in an Oracle database) ▪ Microsoft Internet Explorer 5, 6 or Internet Explorer 4 with the XML parser available at http://msdn.microsoft.com/downloads/tools/xmlparser/xmldl.asp

Web Interface Client

To use the RequisiteWeb interface requires that a web browser be available. **rs_install** will install a version of Netscape that is compatible with RequisiteWeb. No additional client installation is required for use of the RequisiteWeb interface. If you choose not to use the supplied version of Netscape, the following web browsers should be compatible:

▪ Microsoft Internet Explorer 4.x or later

▪ Netscape Communicator 4.x or later

- Netscape Navigator 4.x for UNIX or later

Installation Requirements for Rational ClearQuest Web

Rational ClearQuest is provided on UNIX; however, you may use your Rational Suite (Windows Components) license key to install Rational ClearQuest on Windows. Installing ClearQuest allows UNIX users to access ClearQuest through their web browser.

For installation requirements for ClearQuest Web, refer to the *Rational ClearQuest Installation* manual. If you are performing a full installation of ClearQuest, refer to the ClearQuest documentation provided on the *Rational Solutions for Windows Online Documentation* CD in addition to the *Rational ClearQuest Installation* manual.

Planning Your Installation

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.

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, install client, and exec client are provided by a single UNIX server. A separate Windows server is still required to act as the RequisitePro server.

Storage Host

This is the computer that hosts the physical disks on which the product will be 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).

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 document for more information. Access to RequisitePro from a UNIX client is provided through Rational RequisiteWeb.

Note: You cannot have two different versions of Rational Suite installed on the same Windows server.

Figure 1   Installation Computer Roles
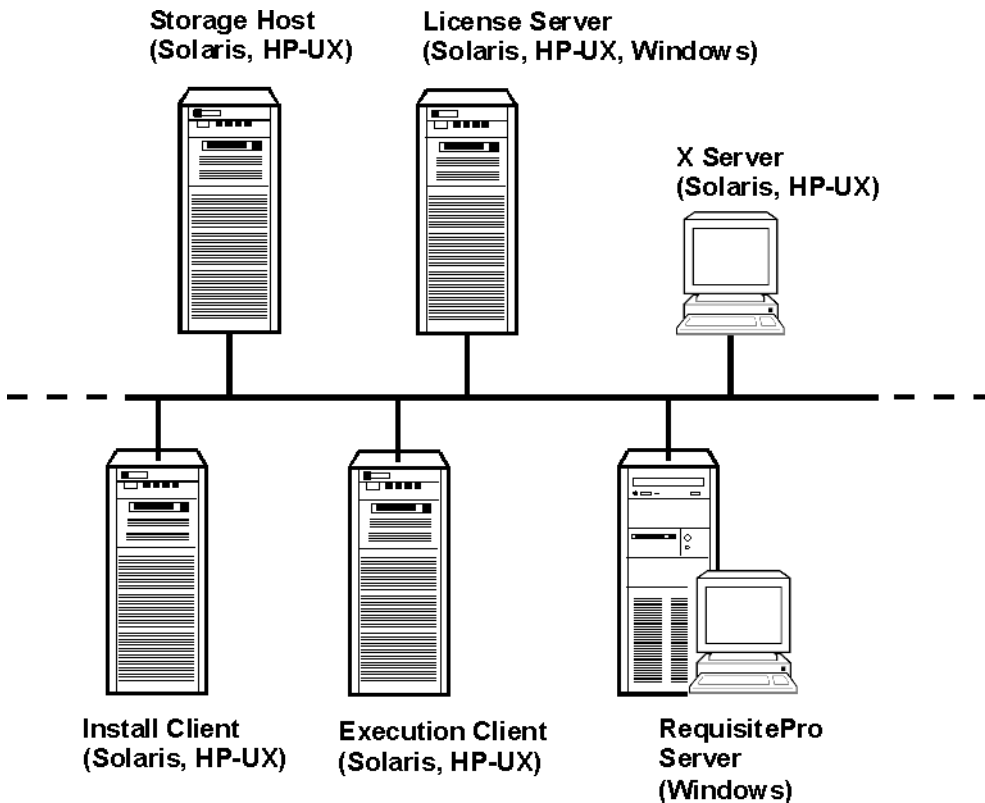
License Servers

These computers provide licensing for Rational Suite. License server configurations are described in more detail in *License Server Configurations* on page 42.

Note: In most cases, it is possible to use the same license server to manage Suite licenses and individual point-product licenses; however, some exceptions apply. For example, ClearDDTS and Rational Suite licenses cannot be served by the same license server. This configuration requires that two separate license servers be set up on two different UNIX systems.

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 which 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 run the installed software from the single installation area.

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 2, 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 2   Single Server Configuration
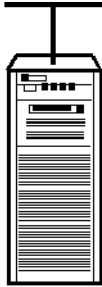
UNIX Server for
UNIX Components and
Windows Components
(Solaris, HP-UX)

Two Server Configuration

As shown in Figure 3, 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 Software on Windows* on page 97.

Figure 3   Two Server Configuration
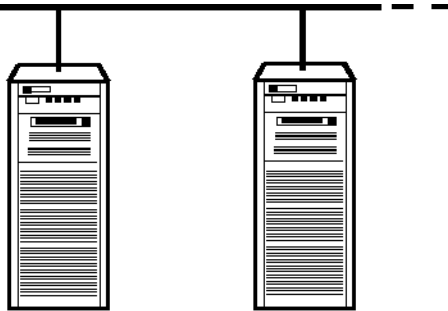
UNIX Server for   Windows Server for
UNIX Components   Windows Components
(Solaris, HP-UX)   (NT, Windows)

Redundant Server Configuration

As shown in Figure 4, 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 more detail in *Setting up Redundant License Servers on UNIX* on page 87.

Figure 4   Redundant Server Configuration

Primary
(Solaris, HP-UX)

Secondary
(Solaris, HP-UX)

Backup
(Solaris, HP-UX)
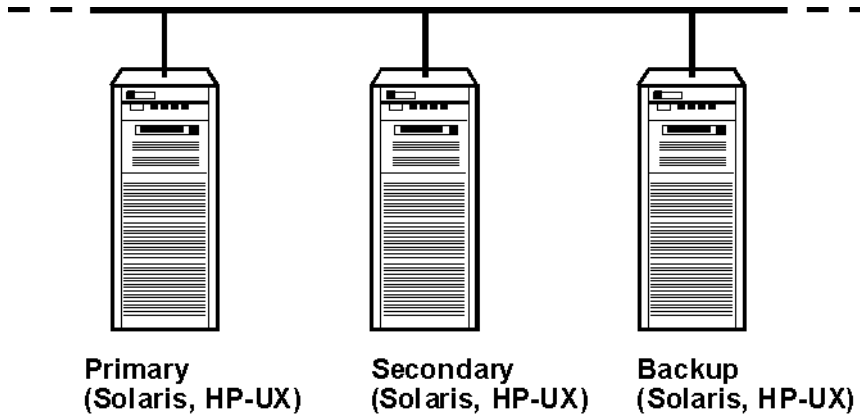
Installation Worksheet

The following worksheet is provided for convenience in planning the installation. Note that some parts may not be known until you begin the installation.

Table 8   Installation Worksheet

Storage Host		
	Host name	_____
	Installation directory (***rational_dir*** location)	_____
	Installation user name (not root)	_____
Install Client		
	Host name	_____
	Install 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	_____

Understanding Rational Suite Licensing

3

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

The Rational Common Licensing Model

Rational Software uses a software-based license management tool from GLOBEtrotter 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 implementing the FLEXlm features that best meets their business needs.

Products Included in Rational Common Licensing

The following list of Rational software products use Rational Common Licensing:

- Rational Rose

- Rational Rose RealTime

- Rational ClearQuest

- Rational RequisitePro and Rational RequisiteWeb

- Rational ClearCase LT

- Rational SoDA

- Rational testing products

- Rational Developer Tools

- Rational Suite DevelopmentStudio for UNIX

- Rational Suite DevelopmentStudio RealTime for UNIX

Products Not Included in Rational Common Licensing

- Rational Developer Tools on UNIX (before the August 2000 release)

- Rational Apex

- Rational ClearCase

- Rational ClearDDTS

- Rational VADS

Types of Licenses

Node-Locked Licenses

Node-locked licenses are created only for a specific system. A node-locked license can be a permanent license, a term license agreement (TLA), or it can be an evaluation license.

Note: Because node-locked licenses are uncounted licenses, there is no need to have a license server process running to manage their use.

Floating Licenses

Floating licenses are licenses that can be shared by multiple users on multiple systems. A Rational license server controls use of the floating licenses.

Note: Users need floating license keys from a Web server to run Rational ClearQuest Web and Rational RequisiteWeb on Web clients.

Floating licenses allow anyone on your network to use Rational Suite as long as a license is available. Thus, the number of licenses that you purchase determines the maximum number of users who can use Rational Suite concurrently.

Permanent Licenses and Temporary License Keys

When you register Rational products to specific systems (license server or client) in AccountLink, Rational generates license keys and sends you an e-mail message with these permanent license keys in a license file. The permanent keys let you use the Rational products for an indefinite period of time. However, Rational assigns an expiration date to the license keys 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 a permanent license.

To use Rational products for an evaluation period or if you expect a delay in receiving your permanent keys, you can install the temporary license key provided in your Rational License Key Certificate. Because Rational has not generated the temporary key for a specific system, you can use it on any system until the specified expiration date.

Permanent and temporary license keys can be floating or node-locked. The difference is that a temporary key is not generated for a specific system and a permanent key is generated for a specific system.

Emergency and Evaluation Keys

Emergency and evaluation license keys are temporary license keys. They can be floating or node-locked. They are short-term licenses that are not generated for a specific system.

Suite Licenses and Point Product Licenses

A Rational license key indicates whether it is a Rational Suite license, such as Rational Suite DevelopmentStudio, or a point-product license, such as Rational Purify. A Rational license file can contain multiple floating or node-locked Suite and point-product license keys.

Returning 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 109.

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.

Adding Point Products to Licenses

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

Using Your Rational License Key Certificate

To get your 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 shipment. The information, especially the Rational Account Number, on this certificate verifies that your company has purchased licenses to run Rational products.

License Usage Order

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

1   Node-locked before floating license

2   Suite license before point-product license

A Rational product requests a node-locked license before a floating license, regardless of whether it is a Suite or point-product license. Then, among a group of floating or node-locked licenses, a product requests a Suite license 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 your Rational products use Suite and point-product licenses, see *Customizing License Usage Order* on page 110.

Rational RequisiteWeb and ClearQuest Web

Rational RequisiteWeb and ClearQuest Web require floating licenses. Unlike other Rational products, they request the point-product license before the Suite license.

Rational ClearCase LT

Rational ClearCase LT can use either a ClearCase LT (floating) license or a Rational Suite (node-locked or floating) license.

Note: Rational ClearCase LT licenses are managed differently from other point products. Rational ClearCase LT uses a linger feature that requires a user to claim a license for a minimum period of 30 minutes. After 30 minutes has elapsed, the license is returned and made available to other users.

Requesting License Keys

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

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

Note: AccountLink does not support temporary license key transactions.

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.

- 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 need to use the download tool.

The following license key types are supported in Rational Suite:

Component type	License type
Rational Suite DevelopmentStudio (UNIX Components) Rational Suite DevelopmentStudio RealTime (UNIX Components)	Node-locked and floating
Rational Suite DevelopmentStudio (Windows Components) Rational Suite DevelopmentStudio RealTime (Windows Components)	Floating

Note: You must request license keys twice if you plan to use any of the Windows Components. You must request a license for the UNIX Components and you must request a license for the Windows Components.

Receiving and Importing License Keys

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 53 or call Rational Licensing Support. See *Contacting Rational Licensing Technical Support* on page xvii for Support phone numbers.

Requesting License Keys by Fax

This section summarizes the steps for getting a node-locked or floating permanent license key when Rational AccountLink is unavailable.

Although this section gives customers instructions for obtaining license keys by fax, Rational recommends that you use Rational AccountLink (www.rational.com/accountlink) to request permanent license keys.

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 CD-ROM and from the installed product area. To view the form directly from the CD-ROM, run the command **rs_help** from the CD-ROM root directory. The form, is located in the HTML Tool Documentation/Rational Suite DevelopmentStudio/FAX License Request Form.

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 Fax the request to Rational. See *Contacting Rational Licensing Technical Support* on page xvii for fax and phone 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 key file through e-mail. You can copy the permanent license file from the e-mail enabled system and install it on the 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 phone. See *Contacting Rational Licensing Technical Support* on page xvii for the phone numbers.

Converting a Temporary License to a Permanent License

If you initially used a temporary license (evaluation or startup) 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 51.

Installing the Product

4

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

- *Upgrading Rational Suite* on page 55

- *Installing Rational Suite (UNIX Components)* on page 57

    - *Installing Rational Suite DevelopmentStudio* on page 58

    - *Installing Rational Suite DevelopmentStudio RealTime* on page 66

- *Installing the Online Documentation* on page 74

- *Verifying Your Installation* on page 76

- *Running the User Setup Script* on page 76

- *Integrating Products That Are Not Part of the Suite* on page 77

- *Changing the Primary RUP Variant* on page 78

- *Installing Rational Suite (Windows Components)* on page 78

- *Configuring and Testing RequisiteWeb* on page 81

- *Removing the Rational Suite Software* on page 82

- *Next Steps* on page 85

Note: If you have not reviewed *Before You Install* on page 27, you should do so *before* proceeding.

Upgrading Rational Suite

Upgrading from Version 2001A.04.00 or 2000.02.10

If you are upgrading from version 2001A.04.00 or 2000.02.10, you may use your existing license.

1   Install the product by running **rs_install**. For complete instructions, see *Installing Rational Suite (UNIX Components)* on page 57.

2   Choose option **1**, use an existing FLEXlm license file, from the **Licensing Options Menu**.

3   After you have completed the upgrade, you may wish to remove the previous version to recover disk space. See *Removing the Rational Suite Software* on page 82.

If you have previously installed version 3.0.1, 3.0.3, or 3.1.0 of Rational SoDA, 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 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: www.rational.com/support/.

Upgrading from a Release Prior to Version 2000.02.10

As of version 2000.02.10, all license management is done through Rational AccountLink, a new 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 51.

1   Install the product by running **rs_install**. For complete instructions, see *Installing Rational Suite (UNIX Components)* on page 57.

2   Choose option **2**, setup a permanent or term-license-agreement, from the **Licensing Options Menu**.

3   After you have completed the upgrade, you may wish to remove the previous version to recover disk space. See *Removing the Rational Suite Software* on page 82.

If you have previously installed version 3.0.1, 3.0.3, or 3.1.0 of Rational SoDA, 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 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: www.rational.com/support/.

Installing Rational Suite (UNIX Components)

This section provides instructions about how to install the UNIX products that are part of Rational Suite. 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.

Note: The term *rational_dir* is used throughout this guide to refer to the directory in which you install Rational Suite.

Installing in Secure Environments

Problems may occur when trying to perform a remote installation of Rational Suite in a secure environment (for example, remote access to other machines is through **ssh**) if the environment does not have access to **rsh** or **remsh**. 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 directories (referred to as *rational_dir*). If you install them into the same Rational directory, you will not be able to uninstall a single OS version later, if necessary. The uninstall script will remove all OS versions that reside in the same Rational directory.

Stopping and Restarting an Installation

You can stop an installation by entering **q** to quit the installation. If you choose **q**, most of your input is saved in a user defaults file that is located in *rational_dir*/config/defaults. The file name itself 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 Rational Suite DevelopmentStudio

Use the following procedure to install Rational Suite DevelopmentStudio.

To install Rational Suite DevelopmentStudio:

1 Log on to the install client. This can be any UNIX computer that:

  □ Gives you access to a CD-ROM 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, Solaris 7 or Solaris 8; or HP-UX 10.20, 11.0 or 11.11)

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

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

  If the CD-ROM drive is not mounted, supplemental instructions can be found in the appendix, *Accessing the CD-ROM Drive* on page 145.

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 agreement and answer yes (**y**) to accept the terms.

6 Choose option **1** from the **Product and License Configuration Selection Menu**. The
following table summarizes *all* of the options for this menu.

Option	Description
1	Choose this option to install Rational Suite DevelopmentStudio.
2	Choose this option to install Rational Suite DevelopmentStudio RealTime. **Note:** This option does not apply if you are installing Rational Suite DevelopmentStudio.
3–8	Choose one of these options to install an individual point product. **Note**: You need to have a license key for the individual point product specified. These options are not intended to be used with a Suite license. Refer to the appropriate point product installation guide and release notes for further instructions on how to install these products: ■ *Rational Rose Installation Guide* ■ *Rational Rose RealTime Installation Guide* ■ *Rational SoDA Installation Guide* ■ *Installing and Getting Started: Rational Purify Plus, Rational Purify, Rational PureCoverage, Rational Quantify* (Options 6 and 7) ■ *Rational ClearQuest Installation Guide*
9	Choose this option to run the license setup only and to bypass installing any applications. You can also use this option to start a license server process for other Rational products.

7 Choose your license option from the **Licensing Options Menu**. Options are summarized in the following table.

Option	Description
1	Choose this option if you already have an existing license file for version 2000.02.10 or later of Rational Suite.
	Note: Rational has changed the way licenses are handled in version 2000.02.10. If you are upgrading from a release prior to version 2000.02.10, you should select option 2. Before you do so, you will need to return your old license key and request a new license key through AccountLink. For more information see *Requesting License Keys* on page 51.
	Caution: Selecting this option will not upgrade the license server software automatically. It is highly recommended that you upgrade the license server software from FLEXlm 6.0i to FLEXlm 7.0f if you have not already done so. This will allow you to take advantage of the new features and help optimize your license server's performance. If you choose not to upgrade and experience frequent problems such as internal errors or vendor daemon errors, you should upgrade the license server software as a first step to addressing these issues. To do this, run **rs_install** again, select option 2, and enter the license key manually (see step 11).
2	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 license server software (FLEXlm 7.0f).
	Note: You need to have either the license file (*filename*.upd) 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 *Requesting License Keys* on page 51.
3	Choose this option if you do not have a permanent license yet and you want to install the product immediately, or if you want to install the product for evaluation purposes.
	Because the license keys are uncounted, option 3 does not start the license server as part of the license check. A license server process is started if you are serving both UNIX and Windows evaluation licenses on a UNIX license server. This is because the Windows License Key Administrator (LKAD) requires the port and host information (*port@host*) when configuring access to a UNIX license server.
	This is a full installation that upgrades both the Rational Suite products and the license server software (FLEXlm 7.0f).
	Note: You need to have your license key certificate available as **rs_install** prompts you for information contained in the certificate.

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 prompted for your license key information for both the Rational Suite DevelopmentStudio (UNIX Components) and Rational Suite DevelopmentStudio (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, run through options 1 and 3. Note that these options are the default settings provided by **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 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 The **Product Customization Menu** allows you to refine your Suite product installation. The default settings for Rational Suite DevelopmentStudio (Solaris) are shown in Figure 5. The default settings for Rational Suite DevelopmentStudio (HP_UX) are shown in Figure 6. To change the installation setting between **yes** and **no**, enter the product number. Once you have the settings you desire, enter **f** to forward to the next menu.

Note: To accommodate heterogeneous environments, the Product Customization Menu gives you the ability to install Rational Unified Process (RUP) for IBM and Microsoft environments on a UNIX server. The default installation settings install the UNIX version of RUP (classic) but you may install any or all variants to support existing clients running in IBM or Microsoft environments. To install other versions of RUP, enter the corresponding number for the variant that you want to install. To deselect the classic version of RUP, enter its number to change the selection to **no**.

Note: Actual file sizes may vary from that shown in Figure 5 and Figure 6.

Figure 5   Product Customization Menu: Solaris

```
     Install?Size (KB)   DevelopmentStudio 2002.05.00
     ------- ---------   -------------------------------
1)    yes          15764  + Purify 2002.05.00
2)    yes          14374  + Quantify 2002.05.00
3)    yes           8735  + PureCoverage 2002.05.00
4)    yes         315325  + Rational Rose 2002 for UNIX 2002.05.00
5)    yes          53419  + Rational Unified Process (classic) 2002.05.00
6)    no              --  + Rational Unified Process (IBM) 2002.05.00
7)    no              --  + Rational Unified Process (Microsoft) 2002.05.00
8)    yes         192408  + SoDA 2002.05.00
9)    yes          87170  + ClearQuest Client 2002.05.00
10)   yes          13224  + ClearQuest Oracle Support 2002.05.00
     ------- --------    -------------------------------
     custom   754095       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 quite without saving your inputs.
?)   Help.

Enter a product number (1-10) or range to (de)select.
```

Figure 6   Product Customization Menu: HP-UX

```
     Install?Size (KB)   DevelopmentStudio 2002.05.00
     ------- ---------   -------------------------------
1)    yes          10289  + Purify (HP-UX) 2002.05.00
2)    yes          11551  + Purify (HP-UX 64) 2002.05.00
3)    yes           9687  + Quantify (HP-UX) 2002.05.00
4)    yes          11253  + Quantify (HP-UX 64) 2002.05.00
5)    yes          11782  + PureCoverage (HP-UX) 2002.05.00
6)    yes         337491  + Rational Rose 2002 for UNIX (HP B.10.20)
                                2002.05.00
7)    yes         686252  + Rational Rose 2002 for UNIX (HP B.11.00)
                                2002.05.00
8)    yes          57137  + Rational Unified Process (classic) 2002.05.00
9)    no              --  + Rational Unified Process (IBM) 2002.05.00
10)   no              --  + Rational Unified Process (Microsoft) 2002.05.00
11)   yes         250719  + SoDA 2002.05.00
12)   yes         213147  + ClearQuest Client 2002.05.00
13)   yes          15298  + ClearQuest Oracle Support 2002.05.00
     ------- --------    -------------------------------
     custom  1614606       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 quite without saving your inputs.
?)   Help.

Enter a product number (1-10) or range to (de)select.
```

15 The **Rational Rose Product Component Customization Menu** allows you to customize your Rose installation. This menu only applies if you are installing Rational Suite DevelopmentStudio. To change the 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.

16 The **SoDA Product Configuration Menu** allows you to customize your SoDa installation. 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 with Rational Rose and Rational ClearQuest. This option applies to Rational Suite DevelopmentStudio.
2	Choose this option if you want to integrate Rational SoDA 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 with Rational Rose. This option applies to Rational Suite DevelopmentStudio.
4	Choose this option if you want to integrate Rational SoDA 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 *all* Rational SoDA 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.

17 The **SoDA Product Component Customization Menu** allows you to customize your SoDA installation. 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.

18 The **Install Documentation Menu** allows you to install online documentation for Rational Purify, Quantify, and PureCoverage.

19 The **Enter Install Mode** menu allows you to decide 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.

The installation process starts.

20 You are prompted to configure the cache directory for Rational Purify, Rational PureCoverage, and Rational Quantify. Do one of the following:

- Enter **no** to accept the default directory.

- Enter **yes** to specify an alternate location and follow the prompts.

21 The following prompt is displayed if you are installing Rational Suite DevelopmentStudio:

```
Are you configuring Rose to work with Apex?
```

Enter a value **Yes** or **No**. If you chose **Yes,** you will need to provide the path to the Apex directory.

22 Define the read/write privileges: **Owner writable**, **Owner and group writable**, or **Writable by all**.

23 Are you configuring SoDA to work with Apex? Enter a value **Yes** or **No**.

If you chose **Yes,** you will need to provide the path to the Apex directory.

24 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 Products That Are Not Part of the Suite* on page 77 after you have finished installing.

- If you have FrameMaker + SGML installed, enter the path.

Note: This release of SoDA does not include FrameMaker + SGML. You need to have either version 5.5 or 6.0 installed to use SoDA.

25 Use ClearQuest with SoDA? Enter a value **Yes** or **No**.

If you choose Yes, you will be prompted to provide the path to the ClearQuest installation. If you chose to install ClearQuest in Step 14, the default path is *rational_dir*/releases/ClearQuestClient.2002.05.00. You can accept the default or specify another path.

26 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.

- ▫ If you know the URLs, enter them now.

27 If you chose to install more than one Rational Unified Process variant in Step 14, you are prompted to select which variant you wish to use as the primary. Enter an option (1–3) to select the primary variant. The default setting is the UNIX (classic) version of RUP.

Note: You may change the primary RUP variant at any time by running the **post_install** command. For more information see *Changing the Primary RUP Variant* on page 78.

The installation of the Rational Suite DevelopmentStudio is now complete.

Installing Rational Suite DevelopmentStudio RealTime

Use the following procedure to install Rational Suite DevelopmentStudio RealTime.

To install Rational Suite DevelopmentStudio RealTime:

1 Log on to the install client. This may be any UNIX computer that:

- ▫ Gives you access to a CD-ROM 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, Solaris 7, or Solaris 8; or HP-UX 10.20)

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

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

If the CD-ROM drive is not mounted, supplemental instructions can be found in the appendix, *Accessing the CD-ROM Drive* on page 145.

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 RealTime.

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 agreement and answer yes (**y**) to accept the terms.

6 Choose option **2** from the **Product and License Configuration Selection Menu**. The following table summarizes *all* of the options for this menu.

Option	Description
1	Choose this option to install Rational Suite DevelopmentStudio. **Note:** This option does not apply if you are installing Rational Suite DevelopmentStudio RealTime.
2	Choose this option to install Rational Suite DevelopmentStudio RealTime.
3–8	Choose one of these options to install an individual point product. **Note**: You need to have a license key for the individual point product specified. These options are not intended to be used with a Suite license. Refer to the appropriate point product installation guide and release notes for further instructions on how to install these products: ▪ *Rational Rose Installation Guide* ▪ *Rational Rose RealTime Installation Guide* ▪ *Rational SoDA Installation Guide* ▪ *Installing and Getting Started: Rational Purify Plus, Rational Purify, Rational PureCoverage, Rational Quantify* (Options 6 and 7) ▪ *Rational ClearQuest Installation Guide*
9	Choose this option to run the license setup only and to bypass installing any product applications. You can also use this option to start a license server process for other Rational products.

7 Choose your license option from the **Licensing Options Menu**. Options are summarized in the following table.

Option	Description
1	Option 1 does not apply to Rational Suite DevelopmentStudio RealTime.
2	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 license server software (FLEXlm 7.0f). **Note**: You need to have either the license file (*filename*.upd) 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 *Requesting License Keys* on page 51.
3	Choose this option if you do not have a permanent license yet and you want to install the product immediately, or if you want to install the product for evaluation purposes. Because the license keys are uncounted, option 3 does not start the license server as part of the license check. A license server process is started if you are serving both UNIX and Windows evaluation licenses on a UNIX license server. This is because the Windows License Key Administrator (LKAD) requires the port and host information (*port@host*) when configuring access to a UNIX license server. This is a full installation that upgrades both the Rational Suite products and the license server software (FLEXlm 7.0f). **Note**: You need to have your license key certificate available as **rs_install** prompts you for information contained in the certificate.

8 Do one of the following:.

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

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

- ▫ License key
- ▫ License type
- ▫ Expiration date

Note: You are prompted for your license key information for both the Rational Suite DevelopmentStudio RealTime (UNIX Components) and Rational Suite DevelopmentStudio RealTime (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 12.

10 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.

11 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.

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

- If you are using an existing license, run through options 1 and 3. Note that these options are the default settings provided by **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 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**.

13 The **Product Customization Menu** allows you to refine your Suite product installation. The default settings for Rational Suite DevelopmentStudio RealTime (Solaris) are shown in Figure 5. The default settings for Rational Suite

DevelopmentStudio RealTime (HP-UX) are shown in Figure 6. To change the installation setting between **yes** and **no**, enter the product number. Once you have the settings you desire, enter **f** to forward to the next menu.

Note: To accommodate heterogeneous environments, the Product Customization Menu gives you the ability to install Rational Unified Process (RUP) for IBM and Microsoft environments on a UNIX server. The default installation settings install the UNIX version of RUP (classic) but you may install any or all variants to support existing clients running in IBM or Microsoft environments. To install other versions of RUP, enter the corresponding number for the variant that you want to install. To deselect the classic version of RUP, enter its number to change the selection to **no**.

Note: Actual file sizes may vary from that shown in Figure 5 and Figure 6.

Figure 7   Product Customization Menu: Solaris (RealTime Edition)

```
      Install?Size (KB)    DevelopmentStudio RealTime 2002.05.00
      ------- ---------    ----------------------------------------
1)    yes         15764    + Purify 2002.05.00
2)    yes         14374    + Quantify 2002.05.00
3)    yes          8735    + PureCoverage 2002.05.00
4)    yes        308019    + Rational Rose RealTime for UNIX 2002.05.00
5)    yes         53419    + Rational Unified Process (classic) 2002.05.00
6)    no             --    + Rational Unified Process (IBM) 2002.05.00
7)    no             --    + Rational Unified Process (Microsoft) 2002.05.00
8)    yes        192408    + SoDA 2002.05.00
9)    yes         87170    + ClearQuest Client 2002.05.00
10)   yes         13224    + ClearQuest Oracle Support 2002.05.00
      ------- ---------    -------------------------------
      custom     693113      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 quite without saving your inputs.
?)    Help.

Enter a product number (1-10) or range to (de)select.
```

Figure 8   Product Customization Menu: HP-UX (RealTime Edition)

```
     Install?Size (KB)    DevelopmentStudio RealTime 2002.05.00
     ------- ---------    ----------------------------------------
1)    yes        10289    + Purify (HP-UX) 2002.05.00
2)    yes        11551    + Purify (HP-UX 64) 2002.05.00
3)    yes         9687    + Quantify (HP-UX) 2002.05.00
4)    yes        11253    + Quantify (HP-UX 64) 2002.05.00
5)    yes        11782    + PureCoverage (HP-UX) 2002.05.00
6)    yes       328545    + Rational Rose RealTime 2002 for UNIX 2002.05.00
7)    yes        57137    + Rational Unified Process (classic) 2002.05.00
8)    no            --    + Rational Unified Process (IBM) 2002.05.00
9)    no            --    + Rational Unified Process (Microsoft) 2002.05.00
10)   yes       250719    + SoDA 2002.05.00
11)   yes       213147    + ClearQuest Client 2002.05.00
12)   yes        15298    + ClearQuest Oracle Support 2002.05.00
     ------- --------     ------------------------------
     custom   1614606       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 quite without saving your inputs.
?)   Help.

Enter a product number (1-10) or range to (de)select.
```

14 The **SoDA Product Configuration Menu** allows you to customize your SoDa installation. 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 with Rational Rose and Rational ClearQuest. This option applies to Rational Suite DevelopmentStudio.
	Note: To use this option, you need to have Rational Rose installed, either as a point product or as part of the Rational Suite DevelopmentStudio edition of Rational Suite.
2	Choose this option if you want to integrate Rational SoDA with Rational Rose RealTime and Rational ClearQuest. This option applies to Rational Suite DevelopmentStudio RealTime.
3	Choose this option if you want to integrate Rational SoDA with Rational Rose. This option applies to Rational Suite DevelopmentStudio.
	Note: To use this option, you need to have Rational Rose installed, either as a point product or as part of the Rational Suite DevelopmentStudio edition of Rational Suite.
4	Choose this option if you want to integrate Rational SoDA with Rational Rose RealTime. This option applies to Rational Suite DevelopmentStudio RealTime.

5	Choose this option to install *all* Rational SoDA domains (Apex, Rose, Summit, TestMate, ClearCase, ClearQuest, and Rose RealTime).
	Note: To use this option, you need to have Rational Rose installed, either as a point product or as part of the Rational Suite DevelopmentStudio edition of Rational Suite.

15 The **SoDA Product Component Customization Menu** allows you to customize your SoDA installation. 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.

16 The **Install Documentation Menu** allows you to install online documentation for Rational Purify, Quantify, and PureCoverage.

17 The **Enter Install Mode** menu allows you to decide 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.

The installation process starts.

18 You are prompted to configure the cache directory for Rational Purify, Rational PureCoverage, and Rational Quantify. Do one of the following:

- ▫ Enter **no** to accept the default directory.

- ▫ Enter **yes** to specify an alternate location and follow the prompts.

19 Are you configuring SoDA to work with Apex? Enter a value **Yes** or **No**.

If you chose **Yes,** you will need to provide the path to the Apex directory.

20 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 Products That Are Not Part of the Suite* on page 77 after you have finished installing.

- ▫ If you have FrameMaker + SGML installed, enter the path.

Note: This release of SoDA does not include FrameMaker + SGML. You need to have either version 5.5 or 6.0 installed to use SoDA.

21 Use ClearQuest with SoDA? Enter a value **Yes** or **No**.

If you choose Yes, you will be prompted to provide the path to the ClearQuest installation. If you chose to install ClearQuest in Step 14, the default path is *rational_dir*/releases/ClearQuestClient.2002.05.00. You can accept the default or specify another path.

22 Use RoseRT with SoDA? Enter a value **Yes** or **No**.

23 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.

- ❑ If you know the URLs, enter them now.

24 If you chose to install more than one Rational Unified Process variant in Step 14, you are prompted to select which variant you wish to use as the primary. Enter an option (1–3) to select the primary variant. The default setting is the UNIX (classic) version of RUP.

Note: You may change the primary RUP variant at any time by running the **post_install** command. For more information see *Changing the Primary RUP Variant* on page 78.

The installation of the Rational Suite DevelopmentStudio RealTime is now complete.

Installing Rational Rose RealTime Companion Products

Rational Rose RealTime Professional Edition includes additional software that extends Rational Rose RealTime to provide support for many embedded targets. The following two products are provided on the *Rational Rose RealTime Companion Products* CD:

- Rational Connexis

- Rational Quality Architect - RealTime Edition (RQA-RT)

 For instructions on how to install the above products, see the *Release Notes and Installation Guide - Rational Rose RealTime Professional Edition*. Before you can use Rational Connexis, you must set the Connexis environment variable. This information is provided in the *Release Notes and Installation Guide - Rational Rose RealTime Professional Edition*.

Installing the Online Documentation

Use the following procedure to install the online documentation.

To install the online documentation:

1 Log on to the install client. This may be any UNIX computer that:

   - Gives you access to a CD-ROM 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, Solaris 7, or Solaris 8; or HP-UX 10.20, 11.0, or 11.11)

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

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

   If the CD-ROM drive is not mounted, supplemental instructions can be found in the appendix, *Accessing the CD-ROM Drive* on page 145.

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 The **Install Documentation Menu** allows you to refine your online documentation installation. The default settings are shown in Figure 9.

   To change 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.

   Note: Actual file sizes may vary from that shown in Figure 9.

Figure 9   Install Documentation Menu

```
     Install?Size (KB)    Product Documentation
     ------- ---------    ----------------------------------------
1)    yes        10830    DevelopmentStudio for UNIX Documents
2)    yes        18009    ClearQuest Documents
3)    yes         2714    DeveloperTools Documents
4)    yes          416    FLEXlm User Manual and FAQ
5)    yes         5206    RequisitePro Documents
6)    yes        13740    Rose Documents
7)    no         44751    Rose RealTime Documents
8)    yes          243    RUP Documents
9)    yes         1113    SoDA Documents
      ------- --------    -------------------------------
      all        97022      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 (1-8) or range to select or de-select which documents to
install.
```

5 The Tool Customization Menu allows to you install Netscape 4.7 and Adobe Acrobat 4.0. The default setting is set to install both products.

If you choose to install the version of Netscape provided with Rational Suite, it is configured so that Adobe Acrobat is automatically launched when you click a link to a PDF file.

If you choose not to install the version of Netscape provided with Rational Suite, you can access the PDF files with the Adobe Acrobat **acroread** executable. Also, 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.2002.05.00/docs/index.html

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

6 The **Enter Install Mode** menu allows you to decide 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.

The installation process starts.

Verifying Your 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 107, and the *Troubleshooting* chapter on page 129.

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 120, and the *Configuring Rational SoDA* on page 123 of this document. For ClearQuest configuration, please see the *ClearQuest Release Notes* (HTML) and *Installing Rational ClearQuest* (PDF) documents.

To verify your installation:

1 Test the UNIX installation and licensing by running Rose and SoDA.

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

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

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

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

Note: rs_setup.csh and **rs_setup.ksh** are setup scripts. For additional information on the setup script see "Running the User Setup Script" on page 76.

Running the User Setup Script

Installation creates two setup scripts which set up the environment to run all the Rational Suite (UNIX Components). These can be used as a common logon for users, and as a convenient point for additional customization.

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
```

Use the aliases summarized in the following table to start a Suite product:

Product	Start command
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 FrameMaker	% soda
Rational Purify Rational PureCoverage Rational Quantify	% purify % purecov % quantify See *Installing and Getting Started: Rational Purify Plus, Rational Purify, Rational PureCoverage,* Rational Quantify for a full description of start command options.
Rational ClearQuest	% clearquest
Rational Unified Process	% viewrup_classic (for UNIX RUP) % viewrup_ibm (for IBM RUP) % viewrup_msft (for Microsoft RUP) % viewrup (starts the primary RUP) **Note**: If you only chose to install one variant of RUP then you may use the **viewrup** command to start it. You only need to use the environment-specific commands if you have more than one variant installed and that variant has not been defined as the primary.

Integrating Products That Are Not Part of the Suite

You may choose to add products that are not part of the Suite after you have installed Rational Suite. The following products are examples:

- Adobe FrameMaker + SGML 5.5 or 6.0 (required to use Rational SoDA)

- Rational Apex

If you answered **no** to adding any of these products when you ran **rs_install**, you may install them later and simply run **post_install**. The **post_install** command allows you to run a subset of **rs_install** that includes prompts for integrating other products with Rational Suite.

Setting up Rational RequisiteWeb and Rational ClearQuest Web

If you have installed Rational RequisitePro on Windows, you can give UNIX users access through their browser by pointing to the Rational RequisiteWeb Server.

If you have installed Rational ClearQuest on Windows, you can give UNIX users access through their browser by pointing to the Rational ClearQuest Web Server.

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.

Changing the Primary RUP Variant

After you have installed Rational Suite using **rs_install**, you can change the primary RUP variant at any time by running the **post_install** command. This only applies if you have installed more than one RUP variant.

Installing Rational Suite (Windows Components)

Rational Suite for UNIX includes several Windows products that you can install and run using your Rational Suite DevelopmentStudio (Windows Components) or Rational Suite DevelopmentStudio RealTime (Windows Components) license key. This group of products is referred to as Windows Components and includes the following point products:

- Rational RequisitePro

- Rational ClearQuest

- Rational TestManager

- Rational Administrator (required for Rational TestManager)

- Web Server Components

    - Rational RequisiteWeb

    - Rational ClearQuest Web

Note: Unless otherwise specified, Rational Suite (Windows Components) is used to refer to both Rational Suite DevelopmentStudio for UNIX (Windows Components) and Rational Suite DevelopmentStudio RealTime for UNIX (Windows Components).

Before you install the Rational Suite (Windows Components), review the following:

- 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 the Rational License Server Software on Windows* on page 97.

Important: Back up any user files *before* starting this procedure. Backing up your data prior to installing any new software should be a regular practice.

Note: You also need to remove any previous versions of Rational Suite (Windows Components) from the target system. For more information, see *Removing Rational Suite (Windows Components)* on page 83.

To install the Rational Suite (Windows Components):

1 Insert the *Rational Solutions for Windows* CD into the system's CD-ROM drive.

   The setup program should start automatically. If autorun is disabled on the system, click **Start > Run**. Using the drive letter of the CD-ROM drive, enter *drive***:\SETUP.EXE**.

   Note: If you plan to install the Rational Suite (Windows Components) on a system that already has other Windows editions of Rational Suite, the Suite editions must be the same version. You cannot have different versions of the Suite installed on the same system.

2 Do one of the following:

   - If you are using a Rational Suite DevelopmentStudio (Windows Components) license key, from the drop-down list, click **Rational Suite for UNIX (Windows Components)**.

   - If you are using a Rational Suite DevelopmentStudio RealTime (Windows Components) license key, from the drop-down list, click **Rational Suite DevelopmentStudio RealTime for UNIX (Windows Components)**.

   Warning: Failure to select the correct product will cause the licensing to fail and the Windows products will be unusable.

3 At the Setup Configuration screen, select **Custom**.

   a Confirm that **Rational ClearQuest**, **Rational RequisitePro**, **Rational TestManager**, and **Web Server Components** are selected.

   b Click **Next** and continue through the installation wizard until complete.

   Restart your system when prompted.

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 and Testing RequisiteWeb

If any Rational RequisiteWeb users are going to access RequisiteWeb through the UNIX version of Netscape Navigator, you will have to do the steps outlined in the *Configuring for UNIX Navigator Access* topic. After installation, that topic and other configuration information can be found on your RequisitePro server at:

c:\Program Files\Rational\RequisitePro\reqweb\reqwebsetup.html

If the HTML documentation files were installed on the UNIX server, the same information can be found at *rational_dir*/docs/html/reqweb_install/RequisiteWebInstall.html

To test Requisite Web:

1   Enter the **rpweb** command on the UNIX host.

```
% rpweb
```

rpweb will launch Netscape Navigator, and display the RequisiteWeb URL. If the **rpweb** command fails, then try sourcing *rational_dir*/rs_setup.csh.

For csh, tcsh, or compatible shells:

```
% source rs_setup.csh
```

```
% rpweb
```

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

```
$ .  rs_setup.ksh
```

```
$ rpweb
```

Another method of testing RequisiteWeb is to invoke Netscape Navigator and point it at the RequisiteWeb URL with the following command.

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

Installing Rational TestManager and UNIX Test Agent

After you install and license Rational TestManager, you need to install Rational Test Agent on a UNIX system.

Note: The same version of Rational TestManager and Rational Test Agent must be installed on the Local and Agent computers; otherwise, they will not work together.

The UNIX Test Agent is included on the *Rational Test Agent* CD. For instructions on how to install the UNIX Test Agent, see "Installing Additional Software" in the *Rational Testing Products Installation Guide.*

Rational Administrator

Before you can use Rational TestManager, you must first create a project in Rational Administrator. For more information, see the *Rational Testing Products Installation Guide.*

Crystal Reports

Crystal Reports can be used with Rational TestManager to customize or create new report formats from the standard output generated by these two applications.

Crystal Reports is provided on the *Crystal Reports Pro Edition* CD. To install this product, refer to instructions provided with the CD.

Removing the Rational Suite Software

After you have installed the latest version of Rational Suite, and after all users have switched to using it, you can remove the old release to reclaim disk space.

Removing Rational Suite (UNIX Components)

Rational Suite includes an **uninstall** script in its **config** directory. You can uninstall an earlier release of a product or Suite by running this script in the *rational_dir* directory.

Before you run **uninstall**, you must verify that your system startup file has a valid path to the Rational license daemon. See *The License Manager* on page 108. Open this file and search for the string **lmgrd**.

If the file contains the following pathname, it is correct:

```
rational_dir/base/cots/flexlm.version/platform
```

If the pathname does not look like this, you must change the path.

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**. Running the script with no command line arguments causes it to display the list of products in the releases directory. You will be prompted for the product or Suite to uninstall. If there is only one product, you will be asked for confirmation before the uninstall takes place. You must be the installer of the product to uninstall it. 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 will be to remove all of the point-products and the Suite directory.

Example:

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

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. The license software will only be removed when the last Suite using it is removed. In all cases, you can select one or more products in the Suite to be spared from the uninstall operation.

Note: Manually removing the Suite directory *does not* remove the Suite. The only things in the Suite directory are the Suite documentation, Suite installation tools and Suite data.

Removing Rational Suite (Windows Components)

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

To remove Rational Suite (Windows Components):

1   Click **Settings > Control Panel**.

2   Double-click **Add/Remove Programs**.

3 Do one of the following:

- ▫ To remove Rational Suite DevelopmentStudio for UNIX (Windows Components), click **Rational Suite DevelopmentStudio for UNIX** and click **Add/Remove**.

- ▫ To remove Rational Suite DevelopmentStudio RealTime for UNIX (Windows Components), click **Rational Suite DevelopmentStudio RealTime for UNIX** and click **Add/Remove**.

Note: Do *not* attempt to remove a product by just deleting program directories - there are many registry entries that need to be modified as well.

If you have removed the Rational Suite (Windows Components) and plan to reinstall the components or install a new version, we recommend that you reboot your system after you have removed the software. Once you have rebooted, proceed with the 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). Other programs may use these files; therefore, following Microsoft guidelines, we do not remove them from your system.

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 manually delete these files 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 products installed from the *Rational Solutions for Windows* CD (or other Rational product CDs).

Next Steps

- If you plan to set up a Windows license server to administer licenses for Requisite Web, see *Installing the Rational License Server Software on Windows* on page 97.

- If you have Rational ClearCase installed and plan on using it with Rational Rose, you need to set up the Rose/ClearCase integration by following the directions in the Rose on-line help topic "Configuring the Rose for UNIX/ClearCase Integration".

- If you plan to set up your UNIX license server in a redundant configuration, see *Setting up Redundant License Servers on UNIX* on page 87.

- The applications listed in the following table must be configured before you can use them:

Point Product	Action
Rational Rose	See *After You Install* chapter on page 117.
Rational SoDA for FrameMaker	See *After You Install* chapter on page 117.
Rational Purify Rational PureCoverage Rational Quantify	See *After You Install* chapter on page 117.
Rational ClearQuest	See the *Rational ClearQuest Installation Guide.*

Setting up Redundant License Servers on UNIX

5

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

- *Redundant Server Configuration* on page 87
- *Installing the License Server Software* on page 88
- *Setting Up the Redundant Server License Files* on page 90
- *Restarting FLEXlm When a Server Reboots* on page 94
- *Setting up Applications to Use Redundant Servers* on page 95

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 10 shows the redundant server configuration.

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

Figure 10   Redundant Server Configuration

Primary | Secondary | Backup
(Solaris, HP-UX) | (Solaris, HP-UX) | (Solaris, HP-UX)
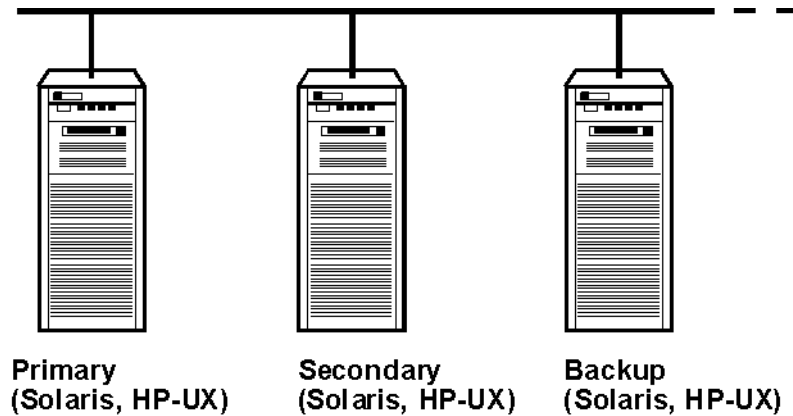
Note: A Windows license server is not a supported platform in a UNIX redundant server setup.

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 online in the /docs directory. To access these guides type **rsdsu_help**. The *FLEXlm Frequently Asked Questions* includes important information about setting up redundant servers.

Installing the License Server Software

You can install the FLEXlm license server software on all three servers without installing the product using **rs_install**. In fact, if this is a first-time installation, this is probably the best method. **rs_install** cannot import a redundant server license file directly, so it is necessary to set up the license file as described in *Setting Up the Redundant Server License Files* on page 90. The section *Setting up Applications to Use Redundant Servers* on page 95 provides tips for running **rs_install** after you have set up your redundant license servers.

If this is an existing installation and the license server software is already installed on one system, go ahead and follow this procedure to install the license server software on the secondary and backup machines. Complete all the tasks in this chapter and refer to the section *Setting up Applications to Use Redundant Servers* on page 95 for instructions on what to do next.

To install the license server software:

1 Obtain copies of the FLEXlm license server software by doing one following:

   a Locate the FLEXlm license server software on the *Rational Solutions for UNIX* CD. The files are in the following location: extras/flexlm/$SYS/7.0f.

   b If you cannot find the FLEXlm tar file for the platform you need, you can go to the following FTP site ftp://ftp.rational.com/public/tools/flexlm and download it. 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.

Compressed tar file	UNIX Vendor	Operating System	Version
flexlm.7.0f.aix.tar.Z	IBM	AIX	4.x
flexlm.7.0f.hp.tar.Z	HP	HP-UX	B.10.20, B.11.00
flexlm.7.0f.sg32.tar.Z	SGI	IRIX	6.x
flexlm.7.0f.sol.tar.Z	Sun	Solaris	2.x

   Note: SunOS 4.x and IRIX 5.x are no longer supported by version 7.0f of FLEXlm. As a result, these systems cannot be used as license servers.

2 Copy the FLEXlm files to the $FLEXROOT directory on all three servers. The term $FLEXROOT is used herein to represent the location from which you plan to run FLEXlm.

   Note: If you downloaded the software from the FTP site, you will have to unpack the files as shown in the example below.

   Example using the HP-UX tar file:

```
cd $ROOT
dd if=flexlm.7.0f.hp.tar.Z  | uncompress | tar -xvf -
ls -l flexlm.7.0f/hppa_hpux (to verify that it got installed)
```

If you get the following

error:

```
flexlm.7.0f.hp.tar.Z: No such file or directory
stdin: not in compressed format
tar: No input
```

Make sure the input file (if=) flexlm.7.0f.hp.tar.Z is in the local directory ($FLEXROOT).

Warning: Be sure to copy the appropriate tar file for the platform on which you are installing.

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 key for redundant UNIX servers. For more information, see *Licensing Requirements for Redundant Servers* on page 90.

2 Place copies of the same license file on each of the three license servers and ensure that the order of the SERVER lines is the same in each file. For more information, see *Renaming License Files* on page 91.

3 Assign a TCP/IP port to each server. For more information see, *Assigning TCP/IP Ports* on page 91.

Licensing Requirements for Redundant Servers

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 Determine the host names for the machines that you plan to use as your primary, secondary and backup servers.

2 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

Note: If you do not have an internet connection, see *Requesting License Keys by Fax* on page 53.

Renaming License Files

The license file (*license_for_primary*.upd) needs to be copied to the $FLEXROOT directory. You need to maintain this file on all three servers.

Copy and rename the file to **rational.dat** as shown below:

```
cp license_for_primary.upd $FLEXROOT/rational.dat
```

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 three port numbers between 1501 and 26999 to use for each server. Note that the same port number can be used for each server, or the port numbers can be unique.

2 Check that the port is not already in use. (Port 1706 is used in the sample commands below.)

- ▫ Check the **etc/services** file

  ```
  grep "[ ]1706/" /etc/services
  ```

- ▫ Check the NIS services by using the **ypcat** services command.

  ```
  ypcat services | grep "[ ]1706/"
  ```

  Note: There is a tab and a space character between the [ ].

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

```
cd $FLEXROOT

vi rational.dat

Your license file should look similar to the example below.

SERVER primary 8001d410 1706

SERVER secondary 8001d625 1706

SERVER backup 8001d873 1706
```

Configuring and Starting the License Servers

You must do the following to start the license servers:

- You must configure the start script for each server. This is best done by copying a template file and modifying it.

- You must 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 template file to the $FLEXROOT directory on all three license servers.

2 You need to set the following four variables in the **start_lmgrd** script.

Solaris Example:

```
FLEXROOT=/usr/rational/flexlm.7.0f

LICENSE_DIR=$FLEXROOT/sun4_solaris2

LICENSE_DAT=$FLEXROOT/rational.dat

LICENSE_USER=joe
```

HP-UX Example:

```
FLEXROOT=/usr/rational/flexlm.7.0f

LICENSE_DIR=$FLEXROOT/hppa_hpux

LICENSE_DAT=$FLEXROOT/rational.dat

LICENSE_USER=joe
```

The above examples show FLEXlm 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 License Servers

After you have completed the following, you are ready to start all three license servers:

- You have installed the FLEXlm license server software on all three servers.
- You have copied the redundant server license file to the $FLEXROOT directory on all servers.
- You have configured the start scripts for all servers.

The servers must be started in the correct order: primary, secondary and backup.

To start the license servers:

1   Start the primary server by entering the following commands:

```
cd /usr/rational/flexlm
./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:

1   Stop each license server by entering the following command:

```
./start_lmgrd stop
```

To verify the license file:

1   Check the Rational INCREMENT line by running the exinstal command:

```
./start_lmgrd ex
```

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

Problems starting the license server

If the license server will not start, check the corresponding **lmgrd** log file (specified 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 Technical Support* on page xvii.

Restarting FLEXlm 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.

Note: For security reasons, it is recommended that you do not run **lmgrd** as *root*. It is recommended that you run **lmgrd** as a user by setting 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".

```
FLEXROOT=/usr/rational/flexlm.7.0f

LICENSE_DIR=$FLEXROOT/hppa_hpux

LICENSE_DAT=$FLEXROOT/rational.dat

LICENSE_USER=joe
```

In previous releases, Rational used the filename **SlmRational.sh** in the system start directories. If there is an **SlmRational.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 /usr/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 /usr/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
```

SGI IRIX

```
cd /usr/rational/flexlm
cp start_lmgrd /etc/init.d/S98Rational
ln -s /etc/init.d/S98Rational /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/*.d/SlmRational.sh
```

IBM AIX

Edit /etc/inittab and add a line to run the start script using /bin/sh:

```
lmgr:234:once:/bin/sh /usr/rational/flexlm/start_lmgrd
```

Setting up Applications to Use Redundant Servers

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

Product is not installed

1   Install the product by running **rs_install**. For complete instructions, see *Installing the Product* on page 55.

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).

Product has been 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 run option 2 because you have already done this when you started the license servers.

Installing the Rational License Server Software on Windows

6

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:

- *Before You Install the License Server Software* on page 97
- *Installing the Rational License Server Software* on page 99
- *Using the Rational License Key Administrator (LKAD)* on page 101
- *Setting Up Licenses* on page 102
- *Starting the License Server* on page 103
- *Modifying the Floating License Time-Out Period* on page 104
- *Removing FLEXlm License Server* on page 106

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 51.

Before You Install the License Server Software

The following sections provide requirements for installing the license server.

Installation Requirements

Table 9 lists the system and software requirements for installing the Rational license server software.

Table 9   Rational License Server Requirements

Item	Requirement
Operating System	Microsoft Windows NT 4.0, Service Pack 2 or greater Microsoft Windows 2000 The Windows systems must have a C drive. On UNIX systems, the Rational license server is available on all platforms that support Rational's products.
Processor	133 MHz or greater
Memory	64 MB
Disk space	73 MB
Privileges	Windows administrator privileges on the local system

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

Default Installation Path

The Rational Software Setup program uses C:\Program Files\Rational as the default installation path. If your C:\ drive lacks sufficient free disk space, you may either specify another drive or make space available on the default drive.

Note: Even though you are installing the software on a different drive, some space is still required on C: drive to store shared system .dlls and portions of the License Server Software.

Warning: Interrupting an installation that is in progress may leave your system in an indeterminate state. If you try to close the Rational Software Setup window while the installation is in progress, the Setup program asks you to confirm that you want to exit from the incomplete installation.

Verifying Network Communication

1 Verify that the Windows application server is correctly networked to the license server.

   a Open a command prompt window on the Windows application server, and then **ping** both the license server IP address and the license server host name.

   ```
   c:\>ping hostname
   ```

```
c:\>ping IP_address
```

Note: The license server may be either a UNIX or Windows computer depending on the licensing option you selected earlier.

If either ping fails, then the networking between the license server and the application server must be corrected. It is beyond the scope of this manual to describe configuration of the Windows network. If necessary, consult your system administrator.

   b From the exec client computer, **ping** the Windows application server.

```
% ping server_name
```

Installing the Rational License Server Software

Use this procedure to install the Rational license server software.

To install the Rational License Server software:

1 Insert one of the *Rational Solutions for Windows* Discs into your system's CD-ROM drive.

The Rational Software Setup program starts automatically.

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

2 The **Rational Software Setup** dialog box provides general information about the software installation.

3 On the **Choose Product** dialog box, choose **Rational License Server**.

4 Choose to accept or not accept the Rational Software license agreement in the **License Agreement** dialog box.

    ▫ If you accept the license agreement, the Setup program continues.

    ▫ If you do not accept the license agreement, you cannot continue with the Setup program. Exit the Setup program by clicking **Finish** or **Cancel**. The Setup program exits and makes no changes to the system.

5 The **Select Configuration** dialog box displays the setup options for the software. The only choice available for the license server is **Typical**.

6 The **Upgrade Compatibility** dialog box appears if you have earlier versions of Rational products already installed on the system. When you have earlier versions of Rational products installed on your system, ensure that all Rational products on

that system are upgraded to the same version. Because Rational tools share files and components, a new installation can cause the older Rational products to stop working.

For each of the Rational products listed in the **Upgrade Compatibility** dialog box, we strongly recommend that you do one of the following:

- **Upgrade it:** Complete the installation, and then restart the Setup program to upgrade the earlier versions of Rational products. For example, if you have stand-alone installations of Rational point products on your system, upgrade each product. If you have a Rational Suite and a point product on the same system, upgrade both Rational products to the same version. Upgrading each product updates all necessary files, registry entries, startup menu items, and shared components on your system.

- **Remove it:** Complete this installation, and then see the *Rational Suite Installation Guide* (Windows) for the removal procedure.

7 The **Confirmation** dialog box displays the product features that will be installed.

8 The **Error Summary** dialog box displays errors from the first part of the Setup program. If the installation is successful, you do not see this dialog box.

The Rational Software Setup program writes a log of installation activities. The log file is located in *rational_dir*\Rational\RSSetup\RSsetup.log.

Possible Reboot Required

If files required for the installation are in use during the Rational Software Setup program, and if the program needs to install shared components on your system, the Setup program may need to reboot your system. After rebooting, do the following:

1 Log on as the same administrator to complete the installation procedure. If you do not log on as the same administrator, the installation does not complete correctly.

The installation process completes on your system.

2 Click **Finish**.

Note: Install the floating license keys on the license server before you start the license server.

Using 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 program provides an interface to Rational Common Licensing features. Use the LKAD to enter or import license keys and change your license configuration.

- To access the LKAD on a client system, click **Start > Programs > Rational product name > Rational License Key Administrator**.

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

The Help explains how to use the LKAD to review and modify your license configuration. The LKAD Help also provides information about configuring the license server software. To access the Help, click **Help** in the License Key Administrator's main menu or open *rational_dir*\Rational\Common\licadmin.hlp.

Using the LKAD During the Rational Software Setup Program

To take care of licensing tasks before you install a product, open the Rational License Key Administrator from the Rational Software Setup program. The Rational Software Setup offers a **Configure Licenses** button in the **Choose Product** dialog box. When you see the License Key Administrator appear, import a node-locked license key, enter an evaluation license key, and specify a license server. After you configure product licensing, return to the Rational Software Setup program and install the product.

Reviewing Your License Information in the LKAD

By default, you should see complete information about your license keys in the main window of the License Key Administrator. If you do not see this information in the window, use the **View > Show** menu to display information about your licenses.

Table 10 defines each of the options in the **View > Show** menu.

Table 10   Show Licenses

License	Shows
Invalid and Expired Licenses	All expired node-locked, floating, and served licenses on the system that you are using
Floating Licenses	All floating licenses on the system that you are using

Table 10   Show Licenses (continued)

License	Shows
Node Locked Licenses	All node-locked licenses on the system that you are using
Served Licenses	All floating licenses that Rational software on your system could request from the license server

Setting Up Licenses

This section describes how to install permanent or evaluation license keys on the Rational license server.

Importing Permanent or Term License Agreement (TLA) License Keys

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

To import a license key file:

1 Select **License > 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 The **Restart License Server** dialog box will ask you whether you want to restart the license server. Stop and restart the license server to make the latest license key available for license requests.

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.

Entering Temporary or Evaluation 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.

The temporary or evaluation license key information, including the expiration date, is on your License Key Certificate. The License Key Certificate is enclosed in a large green envelope in your Rational Software product shipment.

Enter the temporary license key information on the license server by using the Rational License Key Administrator (LKAD).

- To open the LKAD during the Rational Software Setup program (before you install the product), click **Configure Licenses** in the **Choose Product to Install** dialog box. The License Key Administrator main window and the License Key Administrator Wizard dialog box appear.

- To open the LKAD after you have installed the Rational product, 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.

To enter temporary license information:

1 Select **License > Enter a License** in the menu bar of the License Key Administrator.

2 Choose the type of license you are installing: a **Node-Locked License Key** or a **Floating License Key**.

3 In the next dialog box, enter the following information from your License Key Certificate:

   - Product
   - Expiration Date
   - License Key
   - Quantity (if you are installing a floating license key)

4 Click **Finish**. The License Key Administrator creates a `*.dat` file for the license key in *rational_dir*\Rational\common.

Starting the License Server

Start the Rational license server after you have imported or entered the floating license keys.

Note: The Rational license server will not start until floating license keys are installed.

Starting the License Server on Windows 2000

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**.

Starting the License Server on Windows NT

1 Click **Start** and select **Settings > Control Panel > Services**.

2 Select the **FLEXlm License Manager** in the **Services** dialog box and click the **Start** button.

Note: Although the control panel applet may still appear on your system from an earlier release of Rational server software, version 2001 does not use the FLEXlm control panel applet.

Switching to Manual Startup

The Rational license server software 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.

Switching Startup Type on Windows 2000

1 Click **Start** and select **Settings > Control Panel > Administrative Tools > Services > FLEXlm License Manager**.

2 In the **General** tab, select **manual** under **Startup type.**

Switching Startup Type on Windows NT

1 Click **Start** and select **Settings > Control Panel > Services > FLEXlm License Manager**.

2 In the dialog box, select **manual** under **Startup type**.

Modifying the Floating License Time-Out Period

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.

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).

Note: You can edit the options file while the license server is running, but stop and restart the license server after you have edited the file. See *Starting the License Server* on page 103 for the **Stop** and **Start** buttons.

Modifying the Time-Out Period to Stop Disconnected Mode

The disconnected mode lets you use Rational software at home within a 3 day period of acquiring a license key and disconnecting from the network at work. However, if you have a slow network at work, your software automatically goes into disconnected use mode if it does not receive a response from the Rational license server within 5 seconds. You then see a dialog box that states you are in disconnected use mode after the 5 seconds.

Starting with release 2001A, you can change the time-out period before your Rational application goes into disconnected use mode. The default setting is 5 seconds. To change the setting:

1. Create a DWORD key: HKEY_LOCAL_MACHINE\SOFTWARE\Rational Software\Licensing\1.0\DisconnectTimeout

2. Modify the value (decimal) to be larger than 5 seconds.

Removing FLEXlm License Server

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

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 (www.rational.com/accountlink), the online license management tool. For more information about moving or returning licenses, see *Returning License Keys* on page 49.

3   To remove the software from a Windows NT system, you must have Windows NT 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 Software Setup 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 system.

Administering Licenses

7

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

How Licenses Work

Licenses are managed by a *license manager* (FLEXlm™ software delivered as part of Rational Suite) that runs on a *license server*. The license manager monitors license access, simultaneous usage, idle time, and so on.

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.

Note: Rational ClearCase LT licenses are managed differently from other point products. Rational ClearCase LT uses a linger feature that requires a user to claim a license in increments of 30 minutes. After 30 minutes has elapsed, the license is returned and made available to other users.

The License Manager

Rational Suite uses the Flexible License Manager (FLEXlm™), version 7.0f, from Globetrotter Software, Inc. The license manager includes the following components:

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

  The **rational** 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.

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 11 summarizes the system-administration commands that the license manager provides.

Table 11   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.

For more information about these commands, you can view the FLEXlm online documentation in the *rational_dir*/docs/html/FLEXlm_End-User_Manual directory. This documentation is provided in HTML. These commands are documented in the *License Administration Tools* chapter.

Additional Licensing Commands

In addition to using the commands in Table 11, you can also use the **license_check** command to run the FLEXlm **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 users start Rational Suite, the environment variable LM_LICENSE_FILE is automatically defined for them. FLEXlm 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.

Detailed information about the license file and licensing can be found in the FLEXlm End User Manual. To access this guide type **rsdsu_help**.

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 11 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 11   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:6.0DevelopmentStudioUNIXRT: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 # (Suite first)
```

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 # (standalone only)
```

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 # (Suite only)
```

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 somewhere for Suite licenses to take effect. If a Suite component product cannot find any 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 is supposed to try a Suite license is if it finds that Suite license feature name and version in a component mapping specified in a license map file.

RSU_LICENSE_MAP

When you run the user setup script (**rs_setup.csh** or **rs_setup.ksh**), the setup script checks to see if the environment RSU_LICENSE_MAP variable is set. If the variable is not set, the setup 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 override those of the **License_Map** file read from $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**, the mapping specified in $RSU_LICENSE_MAP is replaced by the mapping specified in **~/.Rational/License_Map**.

Considerations for Customizing License Usage

Because there is no "one size fits all" solution, it is worthwhile to 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 (in **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?

For Rational Suite version 2001A.04.00 and higher, you need to use a different system as the license server. Do not use **rs_install** or **license_setup**. After the licenses are received, append the Rational Suite license to the existing license file. Reread the license file on the server by using the **lmreread** command.

As an alternative, you could use **rs_install** to set up Suite licenses and then manually merge the Apex licenses into this file. If you point **rs_install** at an existing license file with Apex licenses, the file will get saved to *license_file***.prior***N*, where *N* starts at 1 and counts up to the next available prior file. The installer can then take the licenses in that file and merge them back in. Releases after and including Rational Suite, version 1.1 perform this merge automatically.

4 Can I use the FLEXlm redundant license server feature?

Yes. For more information, see *Setting up Redundant License Servers on UNIX* on page 87.

FLEXlm User Guide and FAQ

HTML versions of the *FLEXlm User Guide* and *FLEXlm Frequently Asked Questions* are provided online. If the online documentation is installed, you can access these guides by typing **rsdsu_help**.

For technical support regarding licensing issues, use the contact information provided in *Contacting Rational Licensing Technical Support* on page xvii as your first point of contact.

After You Install

<div style="text-align: right; font-size: 3em;">8</div>

This chapter provides an overview of tasks that you must perform after you have installed Rational Suite. The following topics are included:

- *Configuring Rational Purify, PureCoverage, and Quantify* on page 117
- *Configuring Rational Rose for UNIX* on page 120
- *Configuring Rational SoDA* on page 123

Configuring Rational Purify, PureCoverage, and Quantify

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

The configuration tasks include:

- *Installing on a Read-Only File System* on page 117
- *Making the Manual Pages Available* on page 118
- *Making the Product Available to All Users* on page 119, including:
  - *Making Rational Quantify Scripts Available* on page 119
  - *Making Rational PureCoverage Scripts Available* on page 119
  - *Making Debugger Scripts Available on HP-UX* on page 119

Installing on a Read-Only File System

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. 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.

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 ksh, bash, or other Korn-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 ksh, bash, or other Korn-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 include three scripts that enable you to start instrumented programs under a debugger. You need to create symbolic links to these scripts. For example, for 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 Quantify, create the same symbolic links, substituting **purecov** or **quantify** for **purify**.

The installation is now complete.

Configuring Rational Rose for UNIX

This section details Rational Rose for UNIX configuration, performed after installation. You must complete these steps before using Rational Rose.

The following topics are covered in this section:

- *Rose for UNIX Configuration Files* on page 120
- *Rose.ini File Replaced By rose.reg* on page 120
- *Configuring Your Printer* on page 121
- *Using Rose for UNIX* on page 122
- *Initial Runtime Instructions When Upgrading* on page 122
- *Installing and Using Converted Fonts Provided in this Release* on page 122
- *Configuring the Rose/ClearCase Integration* on page 123

Rose for UNIX Configuration Files

Executing *rational_dir*/releases/DevelopmentStudioUNIX.2002.05.00/*platform*/bin/rose (where *platform* is hppa_hpux 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.2002.05.00/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.2002.05.00/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

Perform the following steps to configure your printer for use with Rose.

- You may print to your default printer by selecting the appropriate print options within Rose. Rose will print to the printer defined in the PRINTER environment variable.

- You may install a default printer, or redefine or add ports by editing your $HOME/windows/win.ini file as described. Any changes made to your $HOME/windows/win.ini will apply to your personal configuration.

  You may also edit the release win.ini file (*rational_dir*/releases/rose.2002.05.00/mw/win.ini). In this case, the same change will apply to any new user who runs the release.

  □ Specify the default printer under the [windows] section, using the following syntax:

  ```
  device=outputdevicename, PSCRIPT, portconnection:
  ```

  The keyword PSCRIPT (PostScript) is used in place of the devicedriver.

  Rose for UNIX supports PostScript printing only.

  □ Specify the UNIX command in the [ports] section. The [ports] section lists available communication and printer ports. The LPTn keywords are mapped to UNIX commands. In the following example, LPT1 and LPT2 are mapped to the print command lp. The print job output is sent to a file. The output file is then sent to the printer. The term "%s" tells the system to substitute the name of the PostScript intermediate output file. The term -dps1700 in the example directs the print job to a UNIX printer named ps1700.

  ```
  [ports]
  LPT1:=lp -c "%s"
  LPT2:=lp -c -dps1700 "%s"
  LPT3:=
  ```

  Note: When using **lp**, the **-c** option should always be used.

  □ Rose does not use the [PrinterPorts] section. Modifying this section will have no effect.

□ The [devices] section lists the active and inactive output devices that can be accessed by device driver PSCRIPT and specifies ports to which these devices are connected. In the following example, Default Postscript Printer=PSCRIPT,LPT1: specifies that the printer is connected to the PSCRIPT queue that is connected to LPT1:

```
[devices]
Default Postscript Printer=PSCRIPT,LPT1:
Postscript Printer QMS=PSCRIPT,LPT2:
```

The devices listed in this section appear in the **File > Print** dialog, under Name. In this dialog you may select the printer you wish to use.

Using Rose for UNIX

Use the following commands to start Rational Rose products:

Product	Command
Rose for UNIX	rose
Analyzer	analyzer
Rose Model Integrator	modelint

These commands are shell scripts contained in the *rational_dir*/releases/DevelopmentStudioUNIX.2002.05.00/*platform*/bin directory (where *platform* is hppa_hpux or sun4_solaris2)

Initial Runtime Instructions When Upgrading

Any user running an earlier version of Rose, should run *rational_dir*/releases/DevelopmentStudioUNIX.2002.05.00/*platform*/bin/rose_cleanup (where *platform* is hppa_hpux or sun4_solaris2).

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

To run Rose, see *Using Rose for UNIX* on page 122.

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

It may be necessary to reconfigure an earlier Rose/ClearCase integration set up. Before using the Rose/ClearCase integration with this release, review the following file (located in this release):

rational_dir/releases/rose.2002.05.00/addins/clearcase/README

Configuring Rational SoDA

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

Note: If you are using an earlier release of SoDA, read about upgrading from previous releases in the *Rational SoDA Release Notes* before installation.

Installation Requirements for Rational SoDA

Note: FrameMaker + SGML is no longer shipped with SoDA. It must now be licensed and installed independently. Rational SoDA 2002.05.00 supports FrameMaker+SGML 5.5 and 6.0.

If you have previously installed version 3.0.1, 3.0.3, or 3.1.0 of Rational SoDA, you can 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 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: www.rational.com/support/.

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, **apiclients** 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.

- **Ghostscript postscript interpreter for *platform***, this is public domain software for processing PostScript images. You may install this component for improving the appearance of diagrams generated by the Rose domain. Ghostscript is provided without warranty or support. Use of Ghostscript is subject to the GNU General Public License. See the *Rational SoDA Release Notes* for more information.

- **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 (Frame's Maker Interchange Format) upon checkin

- Document locking (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 format is more compact and requires less time for FrameMaker+SGML to save and open.

- However, CMVC does not store versions of binary files efficiently. Each version is stored as a full copy of the current 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, which 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).

  However, CMVC stores versions of ASCII text files 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.

  Because MIF files are often quite large, calculating the differences between versions can take some time, thereby slowing the checkin.

A Binary Example

For example, a 10 KB document is controlled in binary format, and its initial version takes up 10 KB in the CMVC database.

The document is checked out, additions are made to it, and its size is now 15 KB. The document is checked in, and its two versions use 25 KB (10 KB + 15 KB) in the CMVC database.

The document is checked out again, minor changes are made to it, and its size remains 15 KB. It is checked in again, and its three versions use 40 KB (25 KB + 15 KB) in the CMVC database.

A MIF Example

The same 10 KB document is controlled in MIF, and its initial version uses 30 KB in the CMVC database. (For this document, the MIF was three times larger than the equivalent binary format.)

The document is checked out, additions are made to it, and its size (in binary format) is now 15 KB. The document is checked in, and its two versions use 36 KB (30 KB + 6 KB in differences) in the CMVC database.

The document is checked out again, minor changes are made to it, and its size (in binary format) remains 15 KB. It is checked in again, and its three versions use 37 KB (36 KB + 1 KB in differences) in the CMVC database.

Document Locking

When documents are controlled and checked in, their UNIX file permissions are set to be read-only (**r**--**r**--**r**--). However, there is no easy way to tell if a document is read-only from within FrameMaker+SGML.

You can tell SoDA to 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.

Using SoDA with 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 your Rose installation. The install process will automatically configure SoDA to use the version of Rational Rose you have specified.

See the release notes for further information about using SoDA with Rational Rose.

Using SoDA with Rational Rose RealTime

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

See the release notes for further information about using SoDA with RoseRT.

Using SoDA with 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.2002.05.00/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. Usually, only some Apex users are regular SoDA users.

See the release notes for further information about using SoDA with Apex.

Using SoDA with 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.

See the release notes for further information about using SoDA with ClearQuest.

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 run **rs_install** using the **post_install** alias to reconfigure SoDA.

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

Using SoDA

After you have completed the SoDA installation, you may start SoDA by running the **soda** command.   For further information, see the instructions for SoDA users in the "Getting Started" chapter of *Using SoDA with Frame.*

Troubleshooting

<div style="text-align: right; font-size: 3em;">9</div>

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

- *Troubleshooting the Installation of Rational Suite (UNIX Components)* on page 129
- *Troubleshooting the Installation of Rational Suite (Windows Components)* on page 134

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 Rational Software product.

Troubleshooting the Installation of Rational Suite (UNIX Components)

Error messages are shown in bold italics in this section.

General Problems

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.

Problems uninstalling

If uninstalling something fails, it may be that you are not the original installer. Log in as the person who installed the product and rerun the uninstall script as that person.

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 directory permissions of the directory where you are trying to create a directory. You must have read (r), write (w), and execute (x) permissions for you or the groups you are in.

Permission problems

If you have permission problems with the tar command, it may be that you are trying to install on top of an already existing product. In most cases, this type of error can be ignored.

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 *Rational Suite (UNIX Components) Installation Requirements* on page 29. The approximate amount of disk space you need to install the Suite is also provided in the **Product Customization Menu** when you run the **rs_install** command.

Could not find rs_install data.

Check that you have correctly mounted the CD-ROM. Refer to *Accessing the CD-ROM Drive* on page 145. 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 command looks for the installation data in 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.

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 permissions 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.

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.

Licensing Problems

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.

It appears that DevelopmentStudio for UNIX <version_number> 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 when 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**.

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 lock file was not cleaned up. This error could result from either:

1 Another copy of **lmgrd** is running.

2 A prior **lmgrd** was killed with **kill -9** which would leave the vendor daemon running.

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

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

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

b Kill those processes:

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

c Remove the **lockrational** file which can be found at either:

/usr/tmp/lockrational
or
/tmp/lockrational

Run /rational_dir/config/start_lmgrd_on_machine

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-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.

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

If the license server is not the same system on which you are installing, it must have access to the *rational_dir* directory where Rational products have been installed.

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 number in the **License Server Host ID Menu** (choice number 2).

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.

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 <pn> is in use in /etc/services.

or

Port number <pn> is in use under NIS services.

If you entered a port number and it appears that the number is 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 the default port number, 27000.

Checked the import file and could not find an INCREMENT line for:

License Feature	Description
DevelopmentStudioUNIX	Suite DevelopmentStudio for UNIX (UNIX Components)
DevelopmentStudioUNIXWeb	Rational Suite DevelopmentStudio for UNIX (Windows Components)

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 licenses.

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 message: ulimit: bad ulimit

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

Troubleshooting the Installation of Rational Suite (Windows Components)

General Problems

If you have problems installing the Web Interface components of Rational Suite, try the following suggestions before you call Rational Technical Support:

- Be sure to stop all 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 any user interface managers or desktop environments that run on top of 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 Problems

The **lmtools** 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*. You can access this guide online by typing **rsdsu_help**.

Rational Rose - Operating System Runtime and/or Patch Requirements

A

The requirements below are in relation to the following platforms (operating system versions):

- HP-UX 10.20 (ACE) and 11.00

- Sun Solaris 2.6, 2.7 (Solaris 7), and 2.8 (Solaris 8)

Note: If you are currently using Rose and your installed operating system patches are currently meeting your needs, we strongly recommend that you not change your installed patches. The following patches are recommended for new customers and customers experiencing problems. If you upgrade your patches, we recommend that you use the following patch versions. While we encourage you to contact the appropriate vendor to determine if a patch has been superseded, we cannot guarantee release compatibility with a patch version we have not yet tested. For information regarding the latest patch versions tested or required with this release, visit the Rational web site at http://www.rational.com/support.

Contact Rational Technical Support if you encounter any compatibility difficulties after installing a patch which supersedes the following patches.

HP-UX 10.20 and 11.00 Patch Requirements and Descriptions

Table 12 summarizes the patch requirements for HP-UX 10.20 and 11.00.

Table 12   HP-UX 10.20 and 11.00 Patch Requirements for Rose

Runtime Patches	Description	Reason for Patch	Operating System Versions and Notes
PHCO_19434	S700_800 10.20 csh(1) cumulative patch	Fixes crash of csh exit of MainWin	HP-UX 10.20 (ACE)
PHSS_21461	S700_800 10.20 Xserver cumulative patch	Fixes Xserver crash with multiple rectangle	HP-UX 10.20 (ACE)
PHSS_17872	HP aC++ runtime libraries (aCC A.01.21)	Runtime for compiler A.01.21	HP-UX 10.20 (ACE)

Table 12   HP-UX 10.20 and 11.00 Patch Requirements for Rose

PHSS_19739	S700_800 10.20 HP DCE 9000 1.5 cumulative patch	Problem with threads	HP-UX 10.20 (ACE)
PHSS_17225	S700-800 10X dld.sl(5) cumulative patch	Runtime requirement	HP-UX 10.20 (ACE)
PHSS_17327 [1]	X/Motif 2.1 Dev Kit Mar99 Periodic Patch	Runtime requirement	HP-UX 11.00
PHSS_19866	ld(1) and linker tools cumulative patch	Resolve dld.sl error when using CORBA & Java Operation Specification Window: **/usr/lib/dld.sl: Unresolved symbol: (libot.sl (unknown))**	HP-UX 11.00
PHSS_16587	s700_800 11.X HP aC++ (aCC A.03.13) runtime libraries	Runtime requirement	HP-UX 11.00

1 Rose requires HP-UX OS Patch PHSS_17327 (X/Motif 2.1 Dev Kit Mar99 Periodic Patch). This Patch requires PHSS_17326 (X/Motif 2.1 Runtime Mar99 Periodic Patch). PHSS_17326 has been superseded by HP-UX OS Patch PHSS_23823

It is important to use PHSS_23823 as Rose for UNIX will not start (display) if an earlier version of this patch is installed (that is, PHSS_21493).

If it is necessary to have a Motif Xlib runtime patch prior to PHSS_23823 and you encounter this issue, refer to the following instructions to workaround this problem:

1 Make sure your Rose process is no longer running. (Use **ps** to determine if the process is running, and "kill -TERM [pid]" if it is necessary to kill the process.)

2 As the owner of these files, enter the following commands:

```
cd rational_dir/releases/rose.I.J.K/install/patches/hppa_hpux/hp11

cp libX11.3 rational_dir/releases/rose.I.J.K/hppa_hpux/hp11/lib/.

chmod 555
rational_dir/releases/rose.I.J.K/hppa_hpux/hp11/lib/libX11.3.
```

3 Run **rose_cleanup**.

4 Run **rose.**

The HP-UX patches are available at:

- http://us-support.external.hp.com (US, Canada, Asia-Pacific and Latin-America)

- http://europe-support.external.hp.com (Europe)

- ftp://us-ffs.external.hp.com ("anonymous" FTP)

Solaris Patch Requirements and Descriptions

Note: Some patches are required on the *server* (the computer from which Rose is launched) and the *client* (the computer that is used to display Rose), and some are required only on the client. In some cases, the server and client are the same computer, but often several users login to one server (to run the application) and have their own displays which serve as their client. The following Sun Solaris patch recommendations are specific to Sun Solaris servers and clients. Table 13 summarizes the server and client patches. Table 14 summarizes the client patches.

Table 13   Solaris Server and Client Patches for Rose

Server and Client Runtime Patches	Description	Reason for Patch	Operating System Version
105181-16	Kernel update patch	Fixes kernel thread problems	Solaris 2.6
105591-06	Shared library patch for C++	Shared library fix	Solaris 2.6
105633-32	Xsun patch	To fix defects in XinitThreads and _XflushInt, that is, defect fixes for multi-threaded applications under X.	Solaris 2.6
106040-12	X input and output method patch	Fixes input/output problem	Solaris 2.6
106327-05	Shared library patch for C++	Shared library fix	Solaris 7
108376-03	Xsun patch	To fix defects in XinitThreads and _XflushInt, that is, defect fixes for multi-threaded applications under X.	Solaris 7
108434-01	Shared library patch for C++	Shared library fix	Solaris 8

Table 14   Solaris Client Patches for Rose

Client (Display) Patches	Description	Reason for Patch	Operating System Version & Graphic Card
105361-10	VIS/XIL Graphics Patch	Provides the imaging and video foundation for Solaris	Supplemental for Creator or Elite graphics card on Solaris 2.6
106147-03	VIS/XIL Graphics Patch	Provides the imaging and video foundation for Solaris	For Creator or Elite graphics card on Solaris 7
105362-20	M64 Graphics Patch	Required for PGX (M64 Graphics card) PCI-based Ultra 5, 10, and 60: ■ To fix gui hanging problems ■ To fix paint problems (black/white regions appear in menus, dialog boxes, toolbars, and so on)	For PGX (M64 Graphics card) on Solaris 2.6
106146-10	M64 Graphics Patch	See "Reason for Patch" under patch 105362-20	For PGX (M64 Graphics card) on Solaris 7
105360-28	FFB Graphics Patch	Supplemental patch for VIS/XIL graphics patch: ■ To fix gui hanging problems ■ To fix paint problems (black/white regions appear in menus, dialog boxes, toolbars, and so on)	For Creator Graphics Card on Solaris 2.6
106145-12	FFB Graphics Patch	See "Reason for Patch" under patch 105360-28	For Creator Graphics Card on Solaris 7
105363-24	AFB Graphics Patch	Supplemental patch for VIS/XIL graphics patch for Elite 3D frame buffer: ■ To fix gui hanging problems ■ To fix paint problems (black/white regions appear in menus, dialog boxes, toolbars, and so on)	For Elite3D Graphics Card Solaris 2.6
106144-12	AFB Graphics Patch	See "Reason for Patch" under patch 105363-24	For Elite3D Graphics Card Solaris 7

Table 14   Solaris Client Patches for Rose (continued)

Client (Display) Patches	Description	Reason for Patch	Operating System Version & Graphic Card
106391-01	TCX Graphics Patch	To fix GUI hanging, and to fix paint problems (black/white regions appear in menus, dialog boxes, toolbars, and so on)	For TCX Graphics Card on Solaris 2.6
107851-01	PGX32 2.1 Graphics Patch	Recommended for GFX graphics card	For GFX Graphics Card on Solaris 2.6, and 7 if "VERSION" line from pkginfo -l TSIgfxOW indicates 2.1, otherwise refer to following patches
107715-04	PGX32 Graphics Patch	Recommended for GFX graphics card	For GFX Graphics card on Solaris 2.6 if 107851-01 does not apply
107716-04	PGX32 Graphics Patch	Recommended for GFX graphics card	For GFX Graphics card on Solaris 7 if 107851-03 does not apply
105492-02	cgsix driver patch	For issue related to GX frame buffer	For cgsix Graphics Card on Solaris 2.6

The Solaris patches are available at:

- http://sunsolve.sun.com/private-cgi/show.pl?target=patches/patch-access

The Sun Solaris patches may not be available publicly.

The following may be necessary to obtain some of the Solaris patches listed above:

- You must have maintenance support with Sun; or

- The system must be under warranty; or

- You must be willing to pay for a patch to receive it.

Detecting a Graphics Card

How to detect a graphics card on a Sun Solaris computer:

```
% ls /dev/fbs/*
```

/dev/fbs/m640 – PGX graphics card

/dev/fbs/afb* – Elite3D graphics card

/dev/fbs/ffb* – Creator/Creator3D graphics card

/dev/fbs/cgsix* – GX graphics card

/dev/fbs/leo* – ZX graphics card

/dev/fbs/sx* – SX graphics card

/dev/fbs/tcx* - TCX graphics card

/dev/fbs/gfx* - GFX graphics card

Errors Encountered if Correct Sun Solaris Runtime Not Installed

A user will encounter the following error if the appropriate Sun Solaris runtime patches are not installed:

```
ld.so.1: exe_name: fatal: libCrun.so.1: open failed: No such file or
directory
```

Displaying on Ultrabook, Using PGX Graphics Card

A CDE crash may occur when displaying Rose for UNIX/Linux on a Ultrabook using a PGX Graphics Card, if Sun Solaris patch 105362-26 is installed.

If using a PGX Graphics Card, we recommend that Sun Solaris patch 105362-20 be installed as this is the latest version tested and determined to be compatible with this release.

If you encounter the CDE crash, uninstall patch 105362-26 and if possible install 105362-20. If Sun Solaris patch 105362-20 is not installed, the following may occur:

- GUI hanging issues
- Paint problems (that is, black/white regions may appear in menus, dialog boxes, toolbars, and so on)

If you uninstall patch 105362-26 and encounter any of the issues described above, or if patch 105362-20 is not available, contact Rational Technical Support .

Support for the PGX32 Add-on Board

If your client computer has the PGX32 add-on board (based on the Permedia 2 chip), you need to install the drivers and patches for this card. You cannot see the device in the /dev/fbs directory unless the drivers are installed.

Contact Rational Technical Support if you require information in relation to the Sun Solaris drivers or patches for the PGX32 add-on board.

Accessing the CD-ROM Drive

<div style="text-align: right; font-size: 2em;">B</div>

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

Mounting the CD-ROM Drive

As root, make a directory (if one does not already exist) to be the mount point for the CD-ROM drive. The following examples for each platform use the directory /cdrom. Make sure you know the device name of the CD-ROM drive. If you do not know the device name for the CD-ROM 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-ROM 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 hsfs /dev/dsk/c0t6d0s0 /cdrom
```

HP-UX 10.x, 11.0, 11.11 (11.i)

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

Unmounting the CD-ROM Drive

For CD-ROM installs, unmount the CD-ROM 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-ROM and repeat the above commands.

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.

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 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 Globetrotter FLEXlm server 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: 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 FLEXlm Server. Software license manager for Windows, UNIX, Java, and VMS.

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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